BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 536/2024,

In the matter of:

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

Index

Filed by Adv. Adv. Suman Arora
Counsel for Central Pollution Control Board

Date: -10.01.2025
Place: Delhi

DETAILS RELATED TO WASTE TO ENERGY PLANTS

(IN COMPLIANCE TO HON'BLE NGT ORDER DATED 12.11.2024 IN O A No 536/2024 IN THE MATTER OF NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024)

CENTRAL POLLUTION CONTROL BOARD

(*Ministry of Environment, Forest & Climate Change*)

"Parivesh Bhawan", East Arjun Nagar,

Delhi-110032

10th, January, 2025

DETAILS RELATED TO WASTE TO ENERGY PLANTS IN COMPLIANCE TO HON'BLE NGT ORDER DATED 12.11.2024 IN O.A No 536/2024 IN THE MATTER OF NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024)

1.0 Background

Hon'ble NGT vide order dated 12.11.2024 in O.A No. 536/2024, News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024, directed in **para 3,** are reproduced below:

"Learned Counsel for respondent no.1-CPCB submits that though the reply was filed but it was filed belatedly, therefore it has not come on record. A hard copy of reply of CPCB has been supplied by the person present on behalf of CPCB in the Court. Though Learned Counsel for CPCB has joined virtually but there is some audio glitch at her end, hence we are not able to hear her properly. That apart, we find that in the report the full details of waste-to-energy plants that are not complying with the norms have not been filed. Hence, we give an opportunity to Counsel for CPCB to appear and produce all the materials and details relating to waste to energy plants that are not complying with the norms".

A copy of Hon'ble NGT order is attached as **Annexure I**

CPCB has previously filed its response in compliance with Hon'ble NGT order dated 15.05 2024 (**Annexure II**) on the matter. The same is placed at **Annexure III**. The report covered the provisions of SWM Rules applicable to the Waste to Energy(WtE) Plants and the status of WtE plants in the country.

As per the said report , following are relevant provisions of the SWM Rules applicable to the WtE plants

i. As per Rule 21 of SWM rules, 2016 non-recyclable waste having calorific value of 1500 K/Cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

ii. Para B of Schedule II of the SWM Rules specify the standards for treated leachate for 19 parameters namely Suspended solids, Dissolved solids, pH, Ammonical Nitrogen, Kjeldahl N, BOD, COD, As, Hg, Pb, Cd, Cr, Cu, Zn, Ni, CN, Chloride, Fluoride and Phenolic compounds

iii. Para C of Schedule II of the SWM Rules, 2016, stipulates the emission standards for 11 parameters namely Particulate matter, HCl; SO_2; CO; TOC; HF; NO_x; Dioxin & Furan; Hg & Compounds, Sb+ As & compounds; Cd+Th & Compounds ; Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds. Following are the major compliances to be ensured by the WtE plants as per Schedule II (Para C):

- If the concentration of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal facility.

- All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950 Degree Celsius in secondary combustion chamber and with a gas residence time in secondary combustion

chamber not less than 2 (two) seconds.

- Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve Total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

iv. As per clause 16 of SWM Rules, 2016, The State Pollution Control Board or Pollution Control Committee shall monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites. It shall also issue Authorization to the Waste Management Plants.

2.0 Action Taken Report

2.1 Communications issued to SPCB/PCC

In compliance to Hon'ble NGT order dated 15.05.2024 in this matter, CPCB vide letter dated 07.08.2024, requested all SPCBs/PCCs to provide information related to Waste to Energy (WtE) plants operating in their jurisdiction, including the monitoring details & compliance with the environmental norms, in the prescribed format.

Further in compliance to the order dated 12.11.2024, CPCB issued reminder dated 11.12.2024 (**Annexure-IV**) wherein SPCBs/PCCs were again requested to provide the complete information related to MSW based Waste to Energy (WtE) plants in their jurisdiction in the prescribed format.

2.2 Information received from SPCB/PCC

In response to CPCB letters dated 15.05.2024 and 11.12.2024,

total 32 States/UTs have provided the information (**Annexure-V**).

In addition to that, 25 States/UTs have reported that no municipal solid waste (MSW) incineration-based Waste-to-Energy (WtE) plant are operational in their jurisdiction. These include Arunachal Pradesh, Andaman & Nicobar, Assam, Bihar, Chandigarh, Chhattisgarh, DNH & DD, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Kerala, Ladakh, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura Puducherry & West Bengal

Seven (07) States have provided the details of 15 MSW incineration based WtE plants operational in their region namely Andhra Pradesh (02), Delhi (04) ,Gujarat (02), Haryana (01), Madhya Pradesh (02), Maharashtra (02) and Telangana (02).

Remaining **04 states, namely Goa, Karnataka, Uttar Pradesh, and Uttarakhand** have not responded to CPCB's letter.

In addition to the fact that four SPCBs/PCCs have not responded to CPCB's letters, it is further observed that the information provided by the above seven SPCBs/PCC are incomplete w.r.t waste-to-energy plants norms as per provisions of SWM Rules. Following are the gaps observed in the information submitted by 7 SPCBs/PCCs w.r.t 15 WtE

- Details w.r.t grant of Authorization of WtE Plants has not been provided by Andhra Pradesh, Gujarat, Haryana & Telangana SPCBs
- Calorific value of the waste incinerated at 03 WtE Plants is below 1500 Kcal /kg (should be 1500Kcal/Kg or more as stipulated under SWM rules, 2016) viz. (at East Delhi Waste Processing Company Pvt Ltd, Delhi , Integrated Solid Waste Management Facility at Murthal VillageSonipat District, Haryana, Rewa MSW Energy Solution Pvt Ltd, Madhya Pradesh)
- All parameters stipulated under Schedule II of the SWM Rules, 2016 for standards of incineration, including dioxins and furans and complete parameters of standards for treated leachate, are not being monitored regularly by SPCBs/PCCs.
- Analysis of bottom ash and fly ash was not done/not provided by SPCBs/PCCs.
- Complete information regarding compliance status of WtE plants w.r.t provisions of SWM Rules and action taken on non-compliances observed has not been provided by SPCBs/PCCs

The summary of information provided by SPCBs/PCCs is given Table 1.0 . Further, it is to noted that there has also been considerable delay in submission of information by several SPCBs/PCCs. The dates on which the information has been provided has been by the SPCBs/PCCs has been indicated in the Table 1.0

Table 1: Compilation of information provided by SPCBs/PCCs related to operational MSW incineration based WtE plants

State/UT /Name of WtE (1) & Date of receipt	Validity of Consent under Air/ Water Act (2)	Validity of Authorization under SWM Rules(3)	Capacity & Power generation (TPD / MW) (4)	Calorific value (Kcal /kg) (5)	Bottom ash/fly ash & disposal method (6)	WtE monitored in last 5 years (Yes/No)(7)	Parameters monitored as per (Schedule -II of SWM Rules, 2016)(8)	Noncompliance observed as per Column 8 (9)	Actions taken against non-compliances	CPCB Observations
Jindal Urban Waste Management, Visakhapatnam (AP) (5.11.24)	Yes	Information Not provided	1372 TPD;(15 MW)	1500	Bottom ash to low-lying areas , Fly ash to brick manufacturing units.	Yes, 20.09.2024	Emission : (PM) Effluent: pH, TSS, TDS,	Not provided	Not provided	• Authorization details not provided • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016

							COD,BOD			not monitored . • Analysis of Bottom & fly ash analysis not provided to confirm that the same is non-hazarodous prior to disposal in low lying areas. • Details of parameters not meeting the stipulated standards to confirm compliance not provided • Action taken on reported

										noncompliance not provided. • Not confirmed if treated leachate has been monitored or not
Jindal Urban Waste Management, **Guntur** Limited (A.P) (5.11.24)	Yes	Information Not provided	1620 TPD (20 MW)	1500	Disposal of bottom ash and fly ash under planning stage	Yes, 08.01.2024	Emission : PM Effluent : pH, TSS, TDS, COD, BOD	PM exceeded slightly.	Not provided	• Authorization details not provided • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016 not monitored . • Analysis of Bottom & fly ash analysis not provided to

										confirm that the same is non-hazarodous prior to disposal in low lying areas. •Action taken on reported noncompliance not provided •Not confirmed, if treated leachate has been monitored or not.
East Delhi Waste Processing Company, Ghazipur, Delhi (7.1.25)	Yes	Yes	1300 TPD (12MW)	1250	Diposal at Ghazipur dumpsite	Yes, 09.09.2024	Details not given	No non compliance	NIL	•Analysis of Bottom & fly ash analysis not provided to confirm that the same is non-

										hazarodous prior to disposal in dumpsite • Although compliance has been reported, details of parameters monitored to confirm compliance is not provided in Column 8 •Based on previous inspection carried out during 2020-21 , non-complying parameters & details of action taken has been

										given as EC imposition as **Rs 20 Lakh.** EC deposited to DPCC by the unit
Tehkhand Waste to Electricity Project Ltd. (Delhi) (7.1.25)	No, (under renewal)	No (under renewal)	2000 TPD (25 MW)	1300-2000	Disposal : Sanitary Landfill Site (SLF) Tehkhand/ Okhla	Yes, 4.9.2024	Details not given	No non compliance	NIL	• Although compliance has been reported, details of parameters monitored to confirm compliance is not provided in Column 8
Timarpur Oklha Waste	No (under renewal)	No (under renewal)	1950 TPD (23 MW)	1300-2000	Disposal : ESLF Tehkhand/ Okhla	Yes, 3.9.2024	Details not given	No Non compliance	NIL	• Although compliance has been reported, details of

Management Company Limited (Delhi)(7.1.25)										parameters monitored to confirm compliance is not provided in Column 8 • Based on previous inspection carried out during 2020-21, details of non-complying parameters & action taken has been given as EC imposition of **Rs 10 Lakh.** EC deposited to DPCC by the unit
M/S Delhi MSW	Yes	Yes	1300 TPD (24 MW)	1500-1600	Disposal : at Secured Landfill	Yes, 28.9.2024	Details not given	No Non complian	NIL	• Although compliance has been reported,

Solutions Ltd (Delhi) ,(7.1.25)					within the premises at MSW facility , Bawana			ce		details of parameters monitored to confirm compliance is not provided in Column 8 •Based on previous inspection carried out during 2020-21 details of non-complying parameters & action taken has been given as EC imposition of Rs **25 Lakh.** EC deposited to DPCC by the unit.

Goodwatts WtE Jamnagr Pvt., Gujarat (20.12.24)	Yes	Information not provided	7.5 MW	1850	Disposed at Cement plant	Yes, 18.10.2024	Emission : PM, SO_2, NOx Treated leachate : Not provided	PM, SO_2, NOx complying	Not provided	•Authorization details not provided •All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016 are not monitored •Information related to disposal of bottom ash not provided •Analysis of Bottom & fly ash analysis not provided to confirm it is non-hazardous is not

										provided •Details of parameters not meeting the stipulated standards to confirm compliance is not provided • Action taken on reported noncompliance is not provided
Jindal WtE Ahmedabad Pvt. Ltd., Gujarat (20.12.2	Yes	Information not provided	15 MW	1300-1750	Send to SLF of Ahmadabad municipal Corporation	Yes, 23.10.2024	Emission : PM, SO_2, , NOx Treated leachate :	PM, SO_2, NOx complying	Not provided	•Authorization details not provided •All parameters in Stack emission & treated leachate as prescribed in

4)							Not provided			Schedule-II of SWM Rules, 2016 are not monitored • Action taken on reported noncompliance is not provided.
Integrated Solid Waste Management Facility at **Murthal Village Sonipat District**	Yes	Yes, (Validity status not provided)	8 MW	1100-1200	Disposal Landfilling	Yes, 28.12.2021, 10.01.2023, 30.09.2023 & 16.03.2024	Emission & Treated leachate: All parameters monitored	Not provided	Not provided	• Capacity not provided • Authorization validity status not provided • Specific information on disposal of bottom ash/flyash not provided • Calorific value of

, Haryana (30.12.24)										waste is less than 1500 Kcal/kg as required under SWM Rules,2016 • Details of parameters not meeting the stipulated standards to confirm compliance is not provided • Action taken on reported noncompliance is not provided.
Rewa MSW Energy Solution	Yes	Yes	500 TPD (6 MW)	1150	Disposal: Landfilling	Yes,16.05.2024	Emission: PM, SO_2,	Non provided	Not provided	• Calorific value of waste is less than 1500 Kcal/kg as required under

Pvt Ltd, M.P (19.12.24)							NOx, CO & HCL Treated Leachate : Not provided			SWM Rules,2016 • Specific information on disposal of bottom ash /flyash not provided • All parameters are not monitored in Stack emission & treated leachate as prescribed in schedule-II of SWM Rules, 2016 . • Details of parameters not meeting the stipulated

										standards to confirm compliance is not provided • Action taken on reported noncompliance is not provided
Jabalpur MSW Pvt. Ltd Kathonda, Jabalpur, M.P (19.12.24)	Yes	Yes	600 TPD: (11.5 MW)	1650-2250	Disposal: Landfilling	Yes 2016 onwards , Date of monitoring not provided	Emission : PM, NOx, SO_2 Treated Leachate : Not provided	Not provided	Not provided	• Specific information regarding date of monitoring carried out at the unit. • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016 are not monitored

										• Specific information on disposal of bottom ash /flyash not provided • Details of parameters not meeting the stipulated standards to confirm compliance is not provided • Action taken on reported noncompliance is not provided
Anotny Lara	Yes	Yes	700 TPD (14 MW)	1600 -1900	Both Ash disposed	Yes, 16.05.2024	Emission HCl, PM,	Not provided	Not provide	• Analysis of Bottom & fly ash analysis not provided

Renewable Energy Private Limited, Waste to Energy, Pimpri Chinchwad, Maharashtra (19.8.24)					at Construction and Demolition Waste Processing Facility	and 28.06.2024.	CO, NO_X, SO_2 Treated Leachate : Not provided		d	to confirm it is non-hazardous is not provided • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016 have not been monitored • Details of parameters not meeting stipulated standards to confirm compliance is not provided • Action taken on reported noncompliance is

										not provided
Bhumi Green Energy Pvt. Ltd., Sangli, Maharashtra (19.8.24)	Yes	Yes	10 MW	2800-3200	Disposal: Sold to brick manufacturing units.	Yes, 28/09/2021, 2021, 2022, 2023 & 2024 latest 09/07/2024)	Emission SO_2, NOx, PM Treated Leachate : Not provided	PM	Warning Notice & Interim direction issued	• Analysis of Bottom & fly ash analysis not provided to confirm it is non-hazardous is not provided • All parameters in Stack emission & treated leachate as prescribed in Schedule-II of SWM Rules, 2016

										have not monitored • Copy of action taken on noncompliance is not provided

Hyderabad MSW Energy Solution Ltd, Telangana (9.1.25)	Yes	Information not provided	19.8 MW	1500-1600	Disposal: Landfilling	Yes, Dates not provided	Emission SO_2, NOx, PM Cu. Pb	Not provided	Not provided	•Authorization details not provided •Specific information on disposal of bottom ash and fly ash not provided •Details of Monitoring of the WtE plant not provided •Action taken on reported noncompliance is not provided •
Dundigal WtE Pvt. Ltd	Yes	Information not	14.5 MW	Not provi	Not provided	Yes, Dates not	Emission SO_2,	Not provided	Not provide	•Authorization details not

Telangana (9.1.25)		provided		ded		provided	NOx, PM Cu. Pb		d	provided •Calorific value of waste not provided •Specific information on disposal of bottom ash and fly ash not provided •Details of Monitoring of the WtE plant not provided •Action taken on reported noncompliance is not provided •

3.0 Details as per inspection conducted by CPCB during October 2024

CPCB monitored the WtE plant at Okha (M/S Timarpur Okhla Waste Management Company Limited, Okhala, Delhi) and submitted report in compliance to Hon'ble Supreme Court order dated 18.09.2024 in the matter of 13120 of 2017 (monitored on 17th & 22-23rd October ,2024). The compliance status of the plant is given below:

- All the monitored parameters in stack emission were found within the prescribed limit.
- Bottom ash & fly ash analysis of the monitored parameters were found within the permissible limits except for exceedance of Cadmium in Fly ash. The concentration of Cadmium was found at 7.32 mg/L in the fly ash, exceeding the prescribed standard limit of 1mg/L as per Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016.

The report filed by CPCB on the matter is placed at Annexure VI

4.0 CONCLUSION :

In view of:

(a) The fact information with respect to seven out of fourteen operational Waste to Energy Plants have been received by CPCB in the last 10 days; and

(b) Complete information w.r.t compliance of norms stipulated in SWM Rules have not been provided;

and that so as to present full details of waste-to-energy plants as directed by Hon'ble NGT vide order dated 12.11.2024, there is need to have complete information from SPCBs/PCCs w.r.t. information sought by CPCB vide letter dated 7.5.24 and reminder dated 11.12.24. In this regard, a meeting has been scheduled to be convened on 14.1.25 with SPCBs/PCCs. Therefore, Hon'ble Tribunal may kindly grant two weeks time for providing complete details of waste-to-energy plants as directed by Hon'ble NGT vide order dated 12.11.2024.

Divy 10.1.25

Divya Sinha
Scientist 'F'
Central Pollution Control Baord

Annexure

Item No. 26 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 12.11.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Respondents: Ms. Suman Arora, Adv. for CPCB (Through VC)
Ms. Praveena Gautam, Mr. Pawan Shukla, Ms. Tissy Annie Thomas & Ms. Akansha Tyagi, Advs. for MoEF & CC (Through VC)
Ms. Malay Swapnil, Adv. for R - 3 (Through VC)

ORDER

1. The matter relates to the utility of waste to energy plants and their sustainability in reference to India's waste problem.

2. Reports on behalf of Respondent No. 3 and Respondent No. 5 were filed earlier.

3. Learned Counsel for respondent no.1-CPCB submits that though the reply was filed but it was filed belatedly, therefore it has not come on record. A hard copy of reply of CPCB has been supplied by the person present on behalf of CPCB in the Court. Though Learned Counsel for CPCB has joined virtually but there is some audio glitch at her end, hence we are not able to hear her properly. That apart, we find that in the report the full details of waste-to-energy plants that are not complying with the norms have not been filed. Hence, we give an opportunity to

Counsel for CPCB to appear and produce all the materials and details relating to waste to energy plants that are not complying with the norms.

4. List on 13.01.2025.

Prakash Shrivastava, CP

Sudhir Agarwal, JM

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

November 12, 2024
Original Application No. 536/2024
JG..

Item No.06 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 15.05.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

2. The matter relates to the utility of the waste to energy plants (WtE) and questions their suitability with respect to India's waste problem. As per the article, Waste-to-energy (WLE) technologies allow for the recovery of energy by burning or incinerating waste that cannot be recycled or composted. Their benefits are considered twofold. One, they offer an alternative waste disposal mechanism, diverting solid waste from landfills. Two, through the generation of electricity or heat by burning waste, they provide a renewable energy source that limits reliance on fossil fuels, thereby reducing greenhouse gas emissions. However, the article alleges that though WtE plants have seen relative success in the European Union, environmentalists and scientists have warned that they may not be a suitable solution for India's waste problem.

3. According to the news item, there are two pertinent issues with incineration as a waste management solution in India-

a. The quality of waste in India: As per the article, the potential of a WtE operation to meet its energy production target depends on the quality of its waste feedstock. Waste with low moisture content and high calorific value would be ideal for incineration. This includes materials such as non- recyclable plastics (multilayered packaging, plastic bags, styrofoam), contaminated non-usable household textile waste, and non-recyclable domestic hazardous waste, such as soiled paper, soiled cloth, pieces of leather, rubber, tyre, and non-usable wood.

However. Domestic waste in India typically contains high moisture content and has low calorific value, making it unsuitable for efficient combustion in WtE plants, The news item alleges that the WtE plants in India often receive mixed waste, which includes organic, recyclable material. It alleges that mixed waste has high moisture content and needs supplementary energy to incinerate or it won't burn well. This energy is typically fossil-fuel-based, which undermines the claim that electricity produced by WtE plants is altogether clean.

b. Health and Environmental implications: As per the article, incineration of mixed waste produces toxic particles, including carbon monoxide, nitrogen oxides, and sulphur dioxide due to inefficient burning. These particles can cause respiratory ailments and also lead to chronic lung diseases, such as asthma among people who live near WtE sites.

Another result of inefficient burning is the large discharge of bottom ash This could be as high as 30-40 percent of the total feed, which then ends up in open dump sites, contaminating the groundwater and soil with its toxic chemicals. It is also hazardous to waste pickers who work at these landfills.

4. The news item raise the question that if India doesn't have suitable waste for WtE plants and these plants are harmful to both human and environmental health, why are more of these facilities being built?

5. It states that In India, an estimated 55 million tonnes of municipal solid waste is generated annually by 377 million citizens residing in urban areas. With an urban population that's expected to grow to 600 million by 2030 and to 814 million by 2050, India is set to generate 165 million tonnes of waste by 2030 and 436 million tonnes by 2050. The waste composition and its characteristics are also subject to change drastically, with a rise in dry waste quantities, a trend observed in major cities. Therefore, there is an urgent need to adopt sustainable waste management practices, with incineration and land filling relegated to the back of the queue.

6. The above matter indicates violation of Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

7. The news item raises substantial issue relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

9. Hence, we implead the following as respondents in this matter:

(i). Central Pollution Control Board, Through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

(ii). Ministry of Forest Environment and Climate Change, through its Secretary, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110003.

(iii). National Environmental Engineering Research Institute, through its Director, Nehru Marg, Nagpur – 4400020.

(iv). Indian Institute of Technology, New Delhi, through its Director, Hauz Khas, New Delhi – 110016.

(v). Indian Institute of Technology, Mumbai, through its director, IIT Bombay, Powai, Mumbai – 400076.

10. Let notice be issued to the above respondents for filing their response at least one week before the next date of hearing.

11. List on 01.08.2024

Prakash Shrivastava, CP

Dr. Afroz Ahmad, EM

May 15, 2024
OA No.536/2024
HB

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

Index

(Filed by Adv. Suman Arora)
On behalf of Central Pollution Control Board

Place: Delhi
Dated: 11.11.2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

REPONSE ON BEHALF OF THE CENTRAL POLLUTION CONTROL BOARD, RESPONDENT No. 1.

1. That the Hon'ble NGT vide Order dated 15.05.2024 has issued notice to the Central Pollution Control Board (CPCB) in the instant matter. A copy of the said Order dated 15.05.2024 is annexed as **ANNEXURE – I.** That in compliance of the said order the reply by CPCB is being made in the succeeding paragraphs.

2. That, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986.

Preliminary Submission:

3. Hon'ble NGT registered O.A No. 536/2024 suo-motu on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024 which highlighted the following issues:

NOTARY PUBLIC R.L. Chaudhary N.C.T. of Delhi Regd. No. 1513 GOVT. OF INDIA

- **Mixed Waste handling and High Moisture and Low Calorific Value of Waste:** WtE plants in India often receive mixed waste, including organic and recyclable materials, leading to inefficient burning and increased pollution. It has high moisture content and low calorific value, making it unsuitable for efficient combustion in WtE plants without supplementary fossil-fuel energy.
- **Air Pollution Due to Incineration of mixed waste:** Incineration of mixed waste produces toxic emissions, including carbon monoxide, nitrogen oxides, and Sulphur dioxide, leading to respiratory ailments and chronic lung diseases among nearby residents.
- **Bottom Ash Generation:** Inefficient burning results in the generation of a large amount of bottom ash, constituting 30-40% of the total feed. This ash can contaminate soil and groundwater and pose health risks to waste pickers.
- **Compliance to Stipulated Norms:** The article alleges potential violations of the Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

4.0 CPCB's Response to Issues raised in the News Article:

It may please be noted that the SPCBs/PCCs are required to submit the Annual Report on Solid Waste Management (SWM) in their jurisdiction as per provisions of SWM Rules 2016. Further CPCB has also monitored several Waste to Energy (WtE) plants in compliance of various Court Orders issued on the matter. Further in compliance of EPR Guidelines notified by MoEFCC as Amendment to PWM Rules, 2016 the Plastic Waste Processors including the Waste to Energy Plants are required to register on

the Centralised Extended Producer Responsibility (EPR) Portal for Plastic Packaging developed by CPCB.

CPCB has accordingly prepared the response to the Hon'ble NGT Order in subsequent paragraphs.

4.1 Mixed Waste handling and High Moisture and Low Calorific Value of Waste:

Waste receipt at WtE plants depends on level of segregation. Partial/not fully segregation leads to receiving wastes which may include organic and recyclable materials. Such unsegregated wastes may have higher moisture content and low calorific value, impacting combustion in WtE plants and emissions thereto.

4.1.1. **Provisions of Solid Waste Management Rules, 2016**

a. Related to segregation of waste

As per Clause 4 of the SWM Rules 2016, it is the responsibility of waste generators (individuals, households, event organizers, street vendors, resident welfare and market associations, gated communities and institutions with more than 5,000 m^2 area, hotels, and restaurants etc.) to segregate, and store the waste generated by them in three separate streams namely bio-degradable (wet waste), non-biodegradable (dry waste) and domestic hazardous wastes, in suitable bins and handover segregated wastes to authorized waste pickers or waste collectors as per the direction or notification by the local authorities.

Moreover, sanitary waste is required to be securely wrapped and placed in the dry or non-bio-degradable waste bin and construction waste is required to be stored separately and disposed of according

to the Construction and Demolition Waste Management Rules, 2016.

The purpose of "at-source segregation of waste" is to enable the efficient collection, transportation, processing, and disposal of municipal solid waste (MSW).

Further, clause 15 of SWM Rules, 2016 stipulates the duties and responsibilities of local authorities (Municipal Corporations, Municipal Councils, Village Panchayats, etc.), which include arranging for door-to-door collection of segregated solid waste from all households, including slums and informal settlements, as well as from commercial and institutional premises. They are required to direct waste generators to avoid littering and ensure waste is segregated at source for authorized waste pickers or collectors. Local authorities to set up material recovery facilities for sorting recyclable materials and transport segregated bio-degradable waste to processing facilities, prioritizing on-site processing. Additionally, they should educate workers and create public awareness campaigns to promote proper waste segregation, storage, and handover of segregated waste to appropriate parties. It is the responsibility of local to collect and transport segregated waste to processing and disposal facilities, usually managed by private contractors.

b. Related to Criteria for Waste To Energy Process

Clause 21 of SWM Rules, 2016 specifies the following criteria for waste to energy process:

Non-recyclable waste having calorific value of 1500 Kcal/kg or more shall not be disposed of on landfills and shall only be utilised

for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

High calorific wastes shall be used for co-processing in cement or thermal power plants.

The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tonnes per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

It is observed that although mixed waste is being sent for disposal at most of the WtE plants, these facilities have facilities for segregation of waste through mechanical and manual methods based on density, size, and magnetic properties with the help of manual sorting, magnetic separators and trommels. Segregation facilities provided in a typical WtE plant include the following:

- Pre-sorting using trommels and ballistic separators to segregate waste.
- Combustible materials form RDF sent to Boiler for generating energy
- Organic fraction sent to windrows for composting. Coarse segregation to remove larger particles.
- Refined compost undergoes further quality improvement.
- Remaining non-recyclable, non-compostable materials sent to landfill

Through aforementioned segregation measures, Refused Derived Fuel (RDF) of higher Calorific value than mixed MSW is fed into the combustion chamber of the boiler.

4.2. Air Pollution Due to Incineration of mixed waste:

Incineration of waste produces toxic emissions, including carbon monoxide, nitrogen oxides, and Sulphur dioxide.

4.2.1 Emission norms for incineration as per SWM Rules, 2016

Solid Waste Management Rules, 2016 (Para-C of Schedule-II) specify the emission standard for the incineration of municipal solid waste (MSW) in India as given in Table 2.0:

Table 2.0: Standard for incineration as per Para-C of Schedule-II of SWM Rules, 2016

Parameter	Emission standard	
(1)	(2)	(3)
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value

NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value
Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

As per note (g) below Clause C (Schedule-II) of SWM Rules,2016

All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950 ^{0}C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

4.2.2 Details of air pollution control devices (APCD) provided in typical WtE facility

As per information provided by the registered WtE facilities on the EPR Portal, Air Pollution Control Devices (APCD) provided in a typical WtE plant include the following:

- **Scrubbers:** Used to remove acid gases from the flue gas stream.
- **Lime Spray Reactors:** Neutralize acidic components in the flue gases.

- **Activated Carbon Injection Systems:** Adsorb dioxins, furans, and heavy metals from the flue gases.
- **Bag Filters:** Capture and remove particulate matter, including the activated carbon particles.
- **Electrostatic Precipitators (ESP):** Remove fine particulates from the flue gases using an electrostatic charge.
- **Reaction Towers:** Where additional treatment of flue gases occurs, often using a combination of activated carbon and other reagents.
- **Scrubbing Systems:** Ensure thorough removal of any residual contaminants from the flue gases.

4.2.3 Inspection of WtE plants

CPCB, in association with the concerned SPCB/PCC, in compliance of Hon'ble NGT Orders in OA No.640/2018 inspected three Waste-to-Energy (WtE) plants namely M/s Timarpur Okhla Waste Management Company Limited. M/s Delhi MSW Solutions Ltd., M/s East Delhi Waste Processing Company Ltd. The inspections reports for 2021 & 2020 are placed at **Annexure-II & Annexure II A respectively**

Overview of the Stack emission monitoring results of the three WtE plants is given below

M/s Delhi MSW Solutions Ltd, Bawana, Delhi.:

2020: All parameters found within stipulated norms

2022: Dioxin and Furans: 0.49 ngTEq/Nm³ (exceeds limit of 0.1 ngTEq/Nm³). Other parameters (PM, NOx, SO2, etc.) within stipulated norms.

M/s Timarpur Okhla Waste Management Company Limited, Okhla, Delhi:

2020: All parameters except Dioxin and Furan found within stipulated norms

2021: Dioxin and Furans: 0.99 ngTEq/Nm³ (exceeds limit of 0.1 ngTEq/Nm³), HCL: 198 mg/Nm³ (exceeds limit of 50 mg/Nm³), Other parameters (PM2.5, PM10, NOx, SO2, etc.) within stipulated norms.

M/s East Delhi Waste Processing Company Ltd., Ghazipur, Delhi:

2020: PM, NOx, Pb not meeting stipulated norms, Dioxin & Furan not monitored

2021: Dioxin and Furans: 0.49 ngTEq/Nm³ (exceeds limit of 0.1 ngTEq/Nm³), PM: 62.7 & 85.1 mg/Nm³ (exceeds limit of 30 mg/Nm³), NOx: 869 mg/Nm³ (exceeds limit of 350 mg/Nm³), HCL: 407 mg/Nm³ (exceeds limit of 50 mg/Nm³), Other parameters within stipulated norms.

The compliance status of WtE plants is observed to be fluctuating, complying in some cases and non-complying in the others. It is observed that WtE plants can comply with the stipulated norms provided necessary operation and maintenance practices are in place and adequate air pollution control measures are implemented.

4.3 Bottom Ash Generation

Inefficient burning results in the generation of a large amount of bottom ash, constituting 30-40% of the total feed. This ash can contaminate soil and groundwater and pose health risks to waste pickers.

a. **Analysis of Bottom ash**

The analysis reports of the bottom ash of the three units inspected by CPCB in Delhi (Refer **Annexure-II**) is given in Table 3.0:

Table 3.0 : Bottom Ash analysis

S.NO.	Parameters	Standard/Limit (mg/L*)	WtE facility (Timarpur)	WtE facility ((Bawana))	WtE facility (Ghazipur)
1.	Loss on ignition (for bottom ash only)	<5%	2.29	1.67	1.89
2.	Arsenic	5 mg/l	BDL	BDL	BDL
3.	Cadmium	1 mg/l	BDL	BDL	BDL
4.	Chromium	5mg/l	0.05	0.08	0.52
5.	Manganese	10mg/l	BDL	BDL	3.01
6.	Lead	5mg/l	0.03	BDL	0.08
7.	Selenium	1mg/l	BDL	BDL	BDL
8.	Copper	25mg/l	0.29	0.01	1.52
9.	Nickel	20mg/l	BDL	BDL	0.42
10.	Zinc	250mg/l	0.03	0.02	10.79
11.	Cobalt	80 mg/l	BDL	BDL	0.12
12.	Vanadium	24mg/l	BDL	BDL	BDL
13.	Antimony	15 mg/l	BDL	BDL	0.36

Based on the analysis of heavy metals, it is observed that the concentration of all the parameters are within the stipulated norms.

b. **Management of Bottom Ash:**

As per information provided in the Centralized EPR Portal for plastic packaging by registered WtE facilities, average ash generation from the incineration of municipal solid waste (MSW) in a typical WtE plant ranges from 22% to 25% of the incinerated quantity. The practices adopted for management of bottom ash in a typical WtE facility include the following:

- Bottom ash is collected from the combustion chamber in Waste-to-Energy (WtE) plants after the incineration of MSW
- A magnetic separator is employed to extract ferrous materials from the bottom ash.
- The remaining ash is sent to the bottom ash handling facility, where it is cooled and further processed.
- This process allows for the recycling of recoverable materials, such as metals.
- Non-recyclable bottom ash is disposed of in sanitary landfills or brick manufacturing

4.4 Compliance Status of WtE plants

As per the Annual Report provided by SPCBs/PCCs for the year 2021-22 , there are thirteen waste-to-energy plants operational in India (Andhra Pradesh – 2, Delhi-2, Goa-1, Haryana-1, Madhya Pradesh-1, Maharashtra -1, Telangana – 1, Uttar Pradesh-3, West Bengal-1).

Further in compliance to Hon'ble NGT order dated 15.5.24 in O.A No. 536/2024 matter, CPCB issued a letter dated 7.08.2024 to all SPCBs/PCCs requesting information on WtE plants in their

jurisdiction in the prescribed format. A copy of CPCB letter is attached as **Annexure-III.**

In response to the CPCB letter, 30 SPCBs/PCCs have provided the information & 06 SPCBs/PCCs namely Arunachal Pradesh, Delhi, Himachal Pradesh, Karnataka, Uttar Pradesh and Uttarakhand have not provided the requisite information.

The following 24 SPCBs/PCCs have reported that there is no operational municipal solid waste (MSW)-based Waste-to-Energy (WtE) plant in their regions, namely: Andaman & Nicobar, Assam, Bihar, Chandigarh, Chhattisgarh, DNH & DD, Goa, Jammu & Kashmir, Jharkhand, Kerala, Ladakh, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Puducherry, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, West Bengal, and Odisha.

06 SPCBs/PCCs, namely Gujarat, Madhya Pradesh, Telangana, Haryana, and Maharashtra & Andhra Pradesh have reported that they have operational municipal solid waste (MSW)-based Waste-to-Energy (WtE) plants. Summary of information provided by the 6 SPCBs/PCCs related to WtE plants is attached as **Annexure-IV.**

Based on the information provided by SPCBs/PCCs, there are 9 operational SWM based WtE plants in 6 States/UTs. It is observed that out of 9 WtE plants, 6 have been monitored by concerned SPCBs/PCCs. 5 WtE plants have been found compliant & one plant in Maharashtra was found non-compliant w.r.t. Particulate matter and action was taken by Maharashtra PCB.

5.0 Guidelines/Documents Prepared by CPCB

5.1 Buffer Zone Guidelines

CPCB amended Guidelines on "Provision on Buffer Zone around waste processing and disposal facilities and submitted to all SPCBs/PCCs for implementation. The purpose of this Guideline is to specify adequate separation distances between solid waste management facility and its surrounding area having different land usage characteristics. The guideline is placed at **Annexure-V**

5.2 Selection Criteria for waste processing technologies

CPCB has prepared a Guidelines on "Selection Criteria for Waste Processing Technologies,". This report provides detailed guidelines for selecting appropriate waste processing technologies including Waste to Energy based on various factors such as the quantity and characteristics of waste, physical and chemical properties, land availability, social factors, capital investment, and treatment duration. The Guidelines are placed at **Annexure VI**

6.0 Conclusions

a. Technology for Solid waste processing, including Waste to Energy, should be selected in compliance with the Guidelines developed by CPCB on the subject

b. ULBs to ensure that Segregated waste is disposed at the WtE plants. Necessary provisions for further segregation of waste, as necessary, should be made at the WtE plant.

c. The WtE facilities should ensure that proper operation & maintenance facilities are followed. It should further implement adequate air pollution control measures to ensure that the emissions from the plant meet the stipulated norms.

d. WtE plants should ensure maximum utilization of Bottom ash for beneficial purposes like bricks manufacturing etc. and minimise the quantity disposed in the landfills.

e. The WtE facility should develop adequate buffer zone in and around its premises, in compliance with the Guidelines developed by CPCB on the subject

f. The concerned SPCB/PCC should regularly monitor the WtE facilities to ensure that the WtE plants are complying with the stipulated norms

7. That the answering respondent CPCB craves the leave of this Hon'ble Tribunal to file additional reply, if so directed.

8. That, in the light of the above submissions, it is respectfully submitted that the answering respondent CPCB shall abide by the orders (s) and/or direction(s) passed by this Hon'ble Tribunal in the instant case.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1512
GOVT. OF INDIA

(Divya Sinha)
Scientist 'F'
Central Pollution Control Board

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION No. 536/2024

In the matter of:

NEWS ITEM TITLED "WASTE TO ENERGY: SMOKESCREEN OR SOLUTION?" APPEARING IN THE INDIAN DEVELOPMENT REVIEW DATED 27.03.2024

AFFIDAVIT

I, **Divya Sinha** working as Scientist 'F' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

DEPONENT

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

VERIFICATION

11 NOV 2024

Verified at New Delhi on this day of _____ 2024 that the contents of the above reply are correct and true on the basis of the records of the case as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

DEPONENT

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA
11 NOV 2024

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Min Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Annexure - I

Item No.06 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 15.05.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

2. The matter relates to the utility of the waste to energy plants (WtE) and questions their suitability with respect to India's waste problem. As per the article, Waste-to-energy (WLE) technologies allow for the recovery of energy by burning or incinerating waste that cannot be recycled or composted. Their benefits are considered twofold. One, they offer an alternative waste disposal mechanism, diverting solid waste from landfills. Two, through the generation of electricity or heat by burning waste, they provide a renewable energy source that limits reliance on fossil fuels, thereby reducing greenhouse gas emissions. However, the article alleges that though WtE plants have seen relative success in the European Union, environmentalists and scientists have warned that they may not be a suitable solution for India's waste problem.

3. According to the news item, there are two pertinent issues with incineration as a waste management solution in India-

a. The quality of waste in India: As per the article, the potential of a WtE operation to meet its energy production target depends on the quality of its waste feedstock. Waste with low moisture content and high calorific value would be ideal for incineration. This includes materials such as non- recyclable plastics (multilayered packaging, plastic bags, styrofoam), contaminated non-usable household textile waste, and non-recyclable domestic hazardous waste, such as soiled paper, soiled cloth, pieces of leather, rubber, tyre, and non-usable wood.

However. Domestic waste in India typically contains high moisture content and has low calorific value, making it unsuitable for efficient combustion in WtE plants, The news item alleges that the WtE plants in India often receive mixed waste, which includes organic, recyclable material. It alleges that mixed waste has high moisture content and needs supplementary energy to incinerate or it won't burn well. This energy is typically fossil-fuel-based, which undermines the claim that electricity produced by WtE plants is altogether clean.

b. Health and Environmental implications: As per the article, incineration of mixed waste produces toxic particles, including carbon monoxide, nitrogen oxides, and sulphur dioxide due to inefficient burning. These particles can cause respiratory ailments and also lead to chronic lung diseases, such as asthma among people who live near WtE sites.

Another result of inefficient burning is the large discharge of bottom ash This could be as high as 30-40 percent of the total feed, which then ends up in open dump sites, contaminating the groundwater and soil with its toxic chemicals. It is also hazardous to waste pickers who work at these landfills.

4. The news item raise the question that if India doesn't have suitable waste for WtE plants and these plants are harmful to both human and environmental health, why are more of these facilities being built?

5. It states that In India, an estimated 55 million tonnes of municipal solid waste is generated annually by 377 million citizens residing in urban areas. With an urban population that's expected to grow to 600 million by 2030 and to 814 million by 2050, India is set to generate 165 million tonnes of waste by 2030 and 436 million tonnes by 2050. The waste composition and its characteristics are also subject to change drastically, with a rise in dry waste quantities, a trend observed in major cities. Therefore, there is an urgent need to adopt sustainable waste management practices, with incineration and land filling relegated to the back of the queue.

6. The above matter indicates violation of Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

7. The news item raises substantial issue relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

9. Hence, we implead the following as respondents in this matter:

(i). Central Pollution Control Board, Through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

(ii). Ministry of Forest Environment and Climate Change, through its Secretary, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110003.

(iii). National Environmental Engineering Research Institute, through its Director, Nehru Marg, Nagpur – 4400020.

(iv). Indian Institute of Technology, New Delhi, through its Director, Hauz Khas, New Delhi – 110016.

(v). Indian Institute of Technology, Mumbai, through its director, IIT Bombay, Powai, Mumbai – 400076.

10. Let notice be issued to the above respondents for filing their response at least one week before the next date of hearing.

11. List on 01.08.2024

Prakash Shrivastava, CP

Dr. Afroz Ahmad, EM

May 15, 2024
OA No.536/2024
HB

Annexure – II

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

Original Application No. 640/2018

In

(Earlier O. A. No. 22/2013(PIC))

In the matter of: -

Sukhdev Vihar Residents Welfare Association — Applicant(s)

Versus

State Of NCT of Delhi — Respondent(s)

Index

Sr. No.	Particulars	Page No.
1.	**Compliance Report** of Waste to Energy Plants in Delhi in Original Application No. 640/2018 (Earlier O. A. No. 22/2013(PIC)) in the matter of Sukhdev Vihar Residents Welfare Association Vs State Of NCT of Delhi in compliance to the Hon'ble NGT orders dated 09.10.2017 & 27.09.2018 respectively.	
2.	**Annexure-I:** A copy of Hon'ble NGT orders dated 09.10.2017 & 27.09.2018.	

(Divya Sinha)
Scientist-E
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi- 110032.

Date: 22.03.2021
Place: Delhi

Compliance Report of Waste to Energy Plants in Delhi

(Period: September-October, 2020)

As per Hon'ble NGT Vide its Order dated 09/10/2017, in OA No. 22 of 2013 THC & dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013)

CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment, Forest & Climate Change, Govt. of India)
'Parivesh Bhawan' C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi-110032
E-mail:divsinha@yahoo.com, Website- www.cpcb.nic.in

March, 2021

1. Background

1.1. Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 THC, directed Central Pollution Control Board to collect and analyse the samples of ambient air quality once in four months, and they shall also conduct at least two surprise inspections and analysis be made in a year from M/s. Timarpur Okhla Waste Management Company Ltd.

1.2. Further Hon'ble NGT vide its order dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013), issued the following directions:

i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection of Waste to Energy (WtE) Plants at Delhi has been conducted by the CPCB and the DPCC. Findings of reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*

ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for reliving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"*

iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

In view of above directions, monitoring was planned during September & October, 2020 of Okhla, Bawana & Gazipur WtE plants. However, due to non-working of the Waste to Energy Plant Ghazipur on 16.09.2020 monitoring could not be carried out. The remaining two plants viz. Okhla & Bawana were subsequently monitored by CPCB & DPCC joint inspection team during September, 21-22, 2020 and September 24-25, 2020 respectively. The members of joint committee i.e. representatives from MoEF & CC , expert from IIT Delhi and representative of Sukhdev Vihar RWA (For Okhla Waste to Energy Plant) were informed vide email dated September 11, 2020 regarding the inspection schedule. Representative from MoEF &CC, expert from IIT Delhi were not present during the inspection of Waste to Energy Plants Okhla & Bawana and representative of RWA Sukhdev Vihar was not present during inspection of Okhla. Further, subsequent to Ghazipur Plant becoming

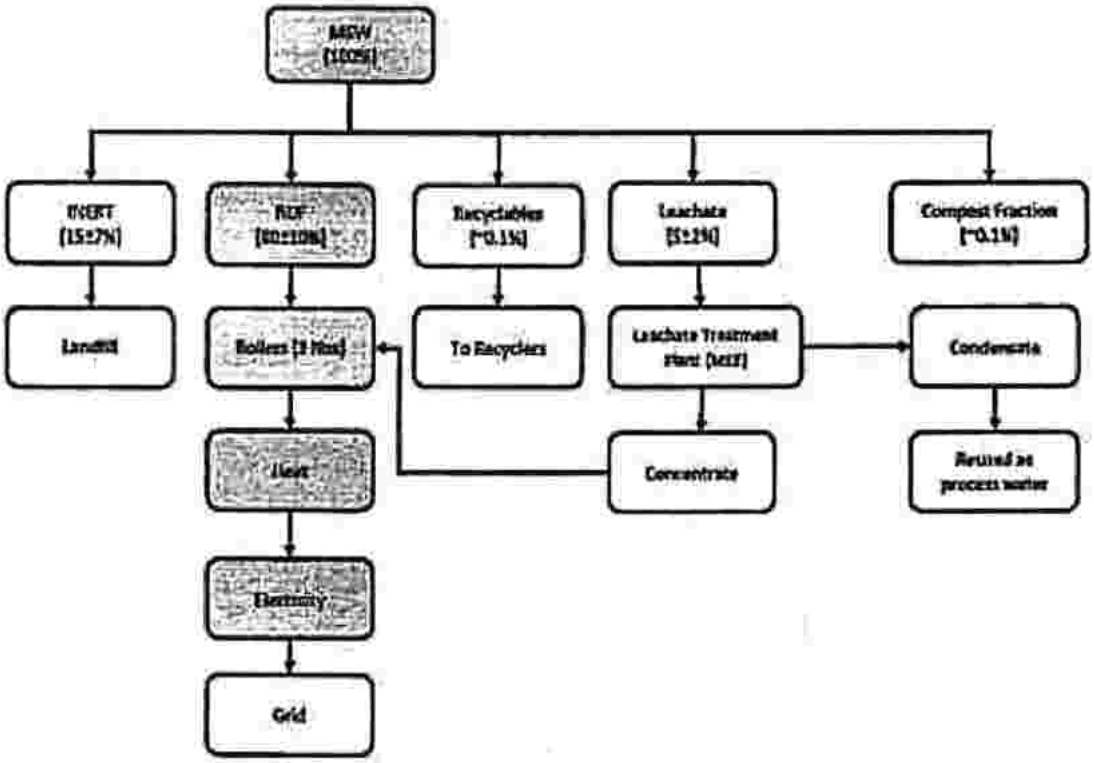
operational, joint inspection team from CPCB, DPCC and expert from IIT, Delhi monitored the plant on October 13-14, 2020. The inspection reports of the three WtE plants is given in the following sections.

Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2.	Name of the occupier/contact person with	Mr. Sandeep Dutt
	Telephone	Mob. 09958360016
	Fax	
	E-mail	Sandip.dutt@jindalcopolls.com
3.	Date of inspection / monitoring	September 21-22, 2020
4.	Installed processing Capacity (as per consent)	As per DPCC Authorization letter dated 21.05.2020 the unit has capacity to process 1950 TPD MSW for subsequent generation of 23 MW power.
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
21.09.2020	6 AM to 6 PM	18.94	21.61
22.09.2020	6 AM to 6 PM	18.68	21.11

7.	**Process Flow Diagram** The unit has own segregation setup of MSW having two trommels with ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below: 

8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Three boilers connected to one stack)	60 mtrs	Scrubber followed by bag filters	Stack Monitoring Conducted by CPCB team & results are tabulated at **Table –1**
9.	OCEMS Status	Installed with stack & was found operational during the inspection.	
10	Ambient Air Quality (Conducted at two locations namely Sukhdev Vihar & STP Okhla)	Ambient Air Quality Status are tabulated at **Table-2**	

11.	Continuous Ambient Air Quality Station	CAAQMS not yet installed
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are tabulated at Table-3

Table 1: Analysis results of the stack emission monitoring of the WtE plant Okhla

S. No.	Parameters	Monitor by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values	
					21-22 September, 2020	Stack	
1.	PM	CPCB	30 mg/Nm³	50 mg/Nm³		10.7	4.4
2.	Hydrogen Chloride		50 mg/Nm³	50 mg/Nm³		198	
3.	SO_2		100 mg/Nm³	200 mg/Nm³		BDL	BDL
4.	NO_x (NO and NO_2 expressed as NO_2)		350 mg/Nm³	400 mg/Nm³		90.3	85.6
5.	CO		100 mg/Nm³	100 mg/Nm³		1.8	
6.	HF		0.5 mg/Nm³	4 mg/Nm³		BDL	
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm³	0.5 mg/Nm³		0.012	
8.	Cd + Th +their compounds		0.05 mg/Nm³	0.05 mg/Nm³		-	
9.	Pb		0.1 mg/Nm³	Not prescribed		0.004	
10.	Hg		0.02 mg/Nm³	0.05 mg/Nm³		BDL	
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	22-10.2020	0.99	
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		7.2	

Table-2. 24 hourly average values of ambient air quality monitoring

Date of sampling	Monitored by	Parameters	Prescribed Standard* (In µg/m³)	Measured values	
				Sukhdev Vihar Location-I	STP Okhla Location-II
21-23 September 2020	CPCB	PM_{10}	100	85.66	72.33
		$PM_{2.5}$	60	78	39
		NO_2	80	41.66	28.33
		SO_2	80	8.166	39

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 3: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values	
21.09.2020	Loss on Ignition (for Bottom ash only)	<5%*	2.29%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.05	0.26
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	0.03	0.05
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.29	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.03	0.15
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

*Standards prescribed by DPCC in the Consent to Operate.
#Concentration Limit to categorise as hazardous waste as per the Hazardous and Other Wastes (Management and Tran boundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act	Valid till 24.09.2024
II	Under Air Act	Valid till 24.09.2024

14. Observations:

a. The processing capacity of the plant is 1950 TPD. However as informed, the plant received only 1652.51 TPD of mixed Municipal Solid Waste (MSW) on 21.09.2020.

b. As informed, total RDF generation in the plant is approximately 1350 TPD. As per the logbook RDF used as fuel in boilers on 21.09.2020 & 22.09.2020 is tabulated at Table 4:

Table 4: RDF Feed Record

RDF Feed (21-09-2020)					
S. No	Feeding Duration		Boiler 1	Boiler 2	Boiler 3
1	06:00	07:00	17.8	17.3	17.6
2	07:00	08:00	17.1	17.8	17.2
3	08:00	09:00	16.9	16.8	16.7
4	09:00	10:00	17.4	16.7	17.7
5	10:00	11:00	17.0	18.2	19.1
6	11:00	12:00	18.0	17.0	16.9
7	12:00	13:00	17.4	18.0	17.5
8	13:00	14:00	18.0	17.2	17.8
9	14:00	15:00	18.0	16.8	16.1
10	15:00	16:00	17.6	17.2	17.9
11	16:00	17:00	23.4	16.4	17.7
12	17:00	18:00	17.2	16.6	17.7
	Total Feed		215.8	206.0	209.9

RDF Feed (22-09-2020)					
S. No	Feeding Duration		Boiler 1	Boiler 2	Boiler 3
1	06:00	07:00	24.8	18.2	18.5
2	07:00	08:00	17.2	18.6	18.8
3	08:00	09:00	21.6	18.0	17.7
4	09:00	10:00	17.3	18.2	22.7
5	10:00	11:00	16.6	18.6	15.5
6	11:00	12:00	18.4	20.8	18.1
7	12:00	13:00	18.7	18.6	17.8
8	13:00	14:00	19.0	18.6	22.4
9	14:00	15:00	25.2	18.2	18.2
10	15:00	16:00	18.6	23.8	18.5
11	16:00	17:00	18.1	18.3	18.6
12	17:00	18:00	18.3	18.6	18.3
	Total Feed		233.8	228.5	225.1

c. All the three boilers along with pollution control devices were found operational.

d. The temperature of furnace was maintained between 950-1050°C.

e. Details of power generation during the said inspection is plotted at **Figure 1.**

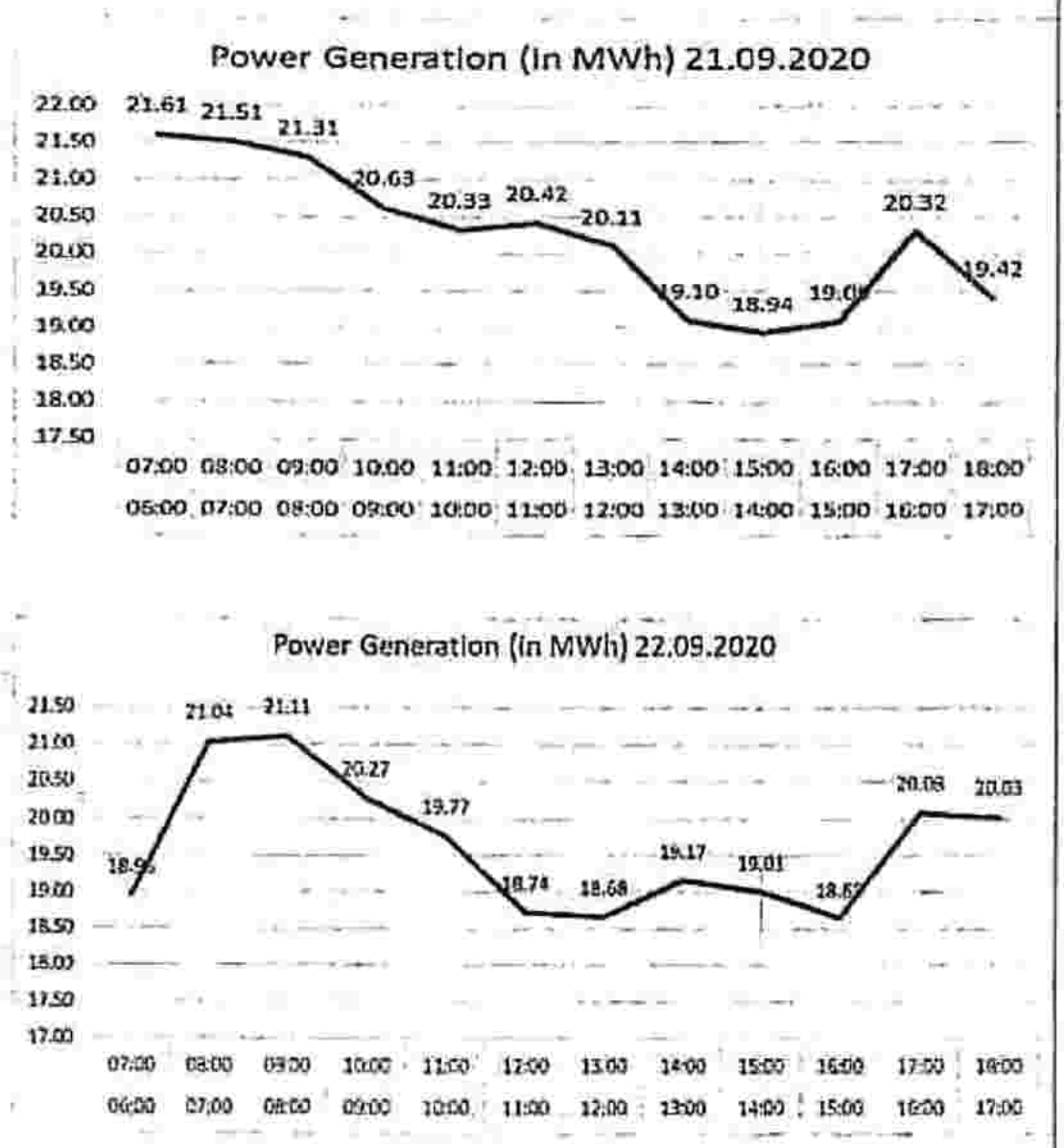


Figure 1: Time vs. power generation plot dated 21 & 22nd September, 2020

f. It is observed that power generation during the monitoring (18.5-21.5 MW) less than the rated power generation capacity (23 MW) of the plant.

g. Stack emission monitoring results are given in Table 1. Following are the observations:

i. The Dioxin and Furans values (0.99 ngTEq/Nm³) of stack monitoring exceeded the permissible limit (0.1 ngTEq/Nm³) monitored by Shriram Institute of Industrial Research (SRI), Delhi.

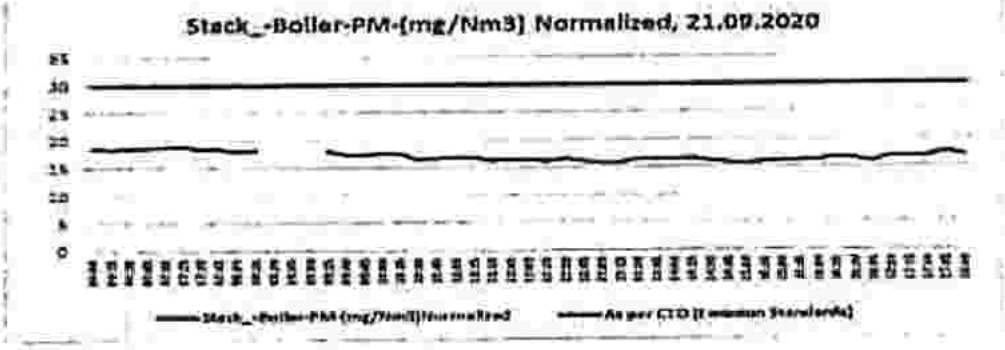
ii. **HCL parameter (198 mg/Nm³) of stack emission monitored by CPCB exceeded the prescribed limit** (50 mg/Nm³)

iii. Remaining parameters were within the stipulated norms.

h. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 21.09.2020 is plotted at **Figure-2.** Comparison of OCEMS data with joint monitoring results is also tabulated in Table 5. Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl level as per actual monitoring is higher than that reported by OCEMS. Also levels of PM, SO_2 and NOx as per actual monitoring is higher than that reported by OCEMS.

Table-5: Comparison of OCEMS and joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint Inspection results
1.	PM mg/Nm³	15-20	4.4-10.7
2.	HCL mg/Nm³	10-30	198
3.	NO_x mg/Nm³	150-200	85-90
4.	SO_2 mg/Nm³	40	BDL



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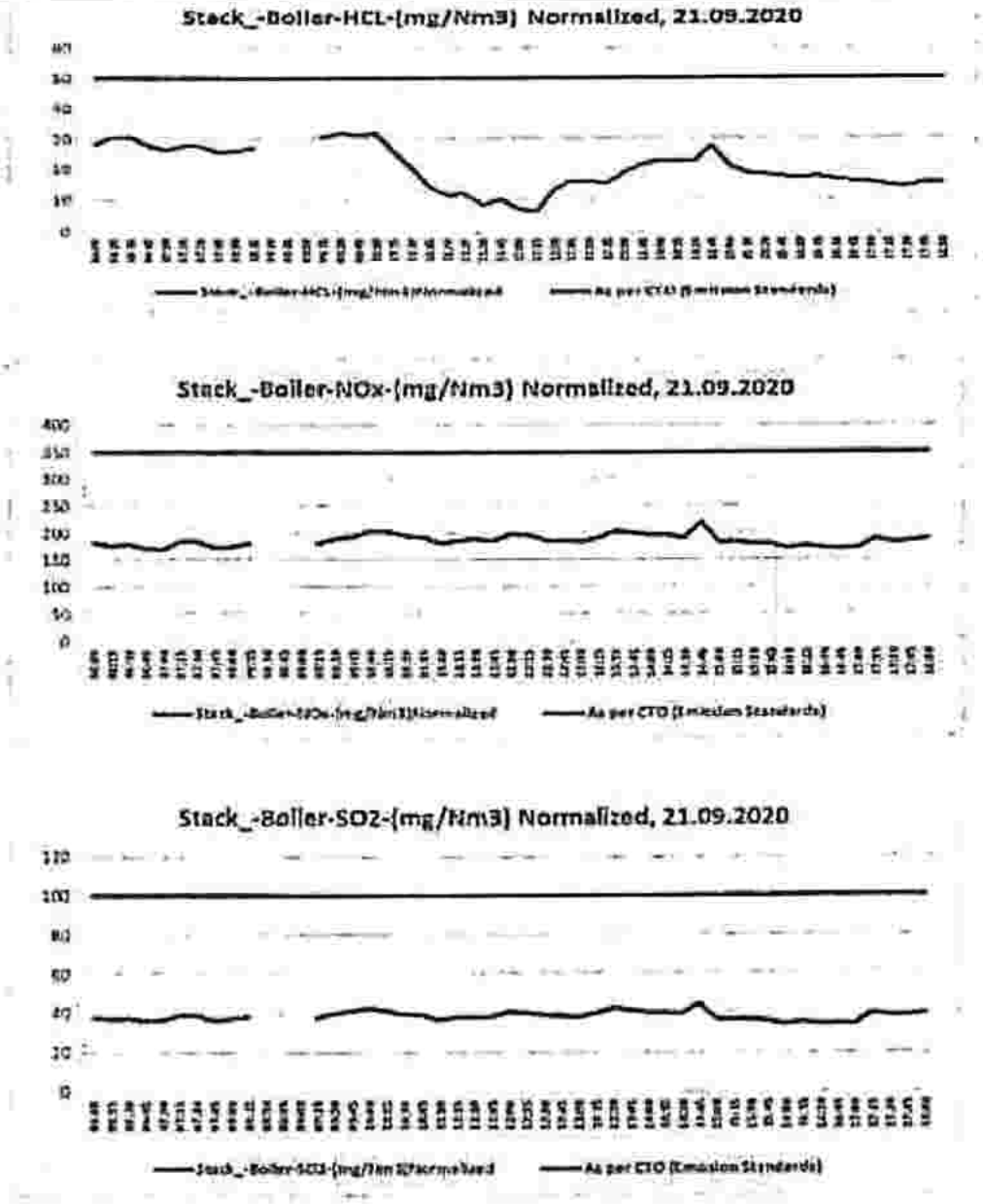


Figure-2: Online Continuous Emission Monitoring System (OCEMS) data for PM, SO_2, NO_x and HCL on 21.09.2020.

i. Ambient Air Quality monitoring results are given in **Table 2.** It is observed that PM2.5 (**78 µg/m³**) exceeded the prescribed limit (60 µg/m³) at Sukhdev Vihar monitoring station. Remaining parameters were found within the limit of both monitoring stations (STP Okhla & Shukdev Vihar).

j. M/s. Timarpur Okhla Waste to Energy plant has placed order to M/s JITF ECOPOLIS for purchase of Continuous Ambient Air Quality Monitoring Station (Copy enclosed).

k. Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash are in **Table-3.** It is observed that monitored levels of all the parameters are within the specified limit.

l. Fly ash bricks manufacturing unit is installed but was not operational during the inspection.

m. Plant has installed water sprinkling system for dust settlement.

n. To control the emission of flue gas, the unit is using $Ca(OH)_2$ and Hydrophobic Organic Carbon (HOC) as dosing and approximately 172 Kg/h and 64.2 Kg/h of $Ca(OH)_2$ and HoC used for dosing during inspection on 21.09.20.

o. During inspection, Multi effect evaporator (MEE) was found operational for treatment of leachate and the treated water was reused as process water.

p. As informed average 250 MT of inerts are produced every day and disposed of at Jaitpur site.

q. Radioactive sensors are installed at gate no. 2 of plant.

r. Plant has maintained considerable greenery inside the premises and along boundary wall.

15. Recommendations

i. Plant to properly control production process and pollution control equipment to ensure that all parameters including Dioxin & Furans and HCl are within the stipulated norms.
ii. Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ concentration) in and around the plant.
iii. OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
iv. Okhla plants should utilize 100 % Fly ash for beneficial purposes like bricks manufacturing etc. and time bound Action Plan to be submitted for the same.
v. The plant to specify the timeframe within which the online continuous ambient air quality monitoring station shall be installed.

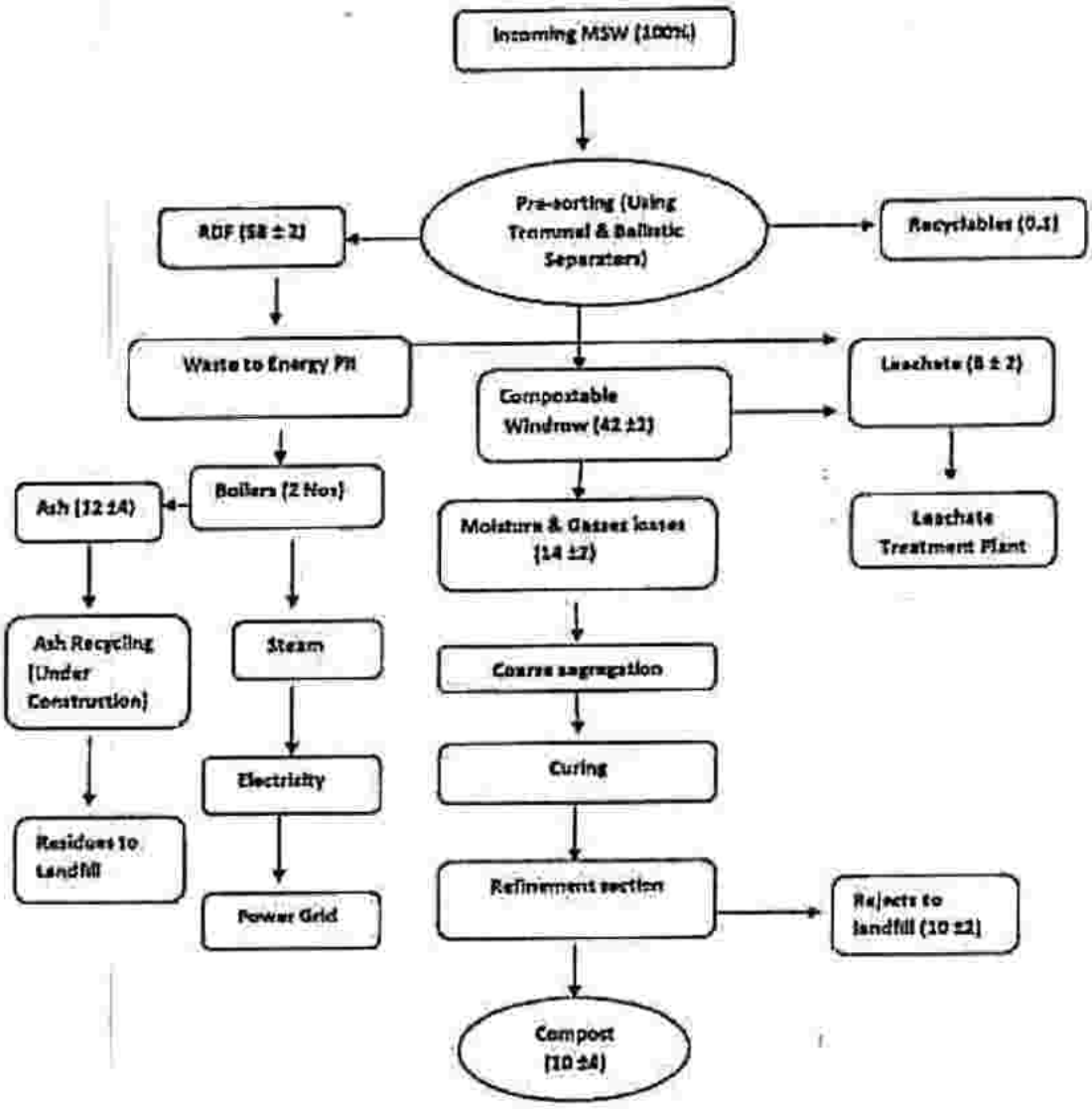
Waste to Energy Plant Bawana

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Delhi MSW Solutions Ltd. Pocket N-1, Sector-5, Bawana Industrial area, Behind Pragati Power Plant Delhi-110039 Latitude Extension: 28°47'58.36"N Longitudinal Extension: 77° 04'11.79"E
2.	Name of the occupier/contact person with Telephone Fax E-mail	K Vijay Kumar Reddy Mob. 9821124350 laboratorynarela@ramky.com
3.	Date of inspection and monitoring	September, 24-25, 2020
4.	Installed processing Capacity (as per consent)	2000 TPD Processing and Disposal facility with 24 MW Waste to Energy Plant
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
24.09.2020	6 AM to 1 PM	22.3	21.1
25.09.2020	6 AM to 6 PM	21.4	20.1

7. **Process Flow Diagram:**

The unit has own segregation setup of MSW having 13 trommels with 4 ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below:



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Two boilers connected to one stack)	60 mtrs	Reaction Tower (lime Spray reactor), Activated Carbon Injection followed by Bag filters.	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SIIR, Delhi. Results are given in Table-6

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality monitoring Conducted at two locations at near main gate of the plant and fire station Bawana	Ambient Air Quality Status given in Table – 7
11.	Continuous Ambient Air Quality Station	CAAQMS Installed & was working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash result in Table-8

Table 6. Analysis results of the stack emission monitoring of the WTE plant Bawana

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values in mg/Nm³
1.	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	24-25 September, 2020	16.7, 12.8
2.	Hydrogen Chloride	CPCB	50 mg/Nm³	50 mg/Nm³		3.35
3.	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, BDL
4.	NO_x	CPCB	350 mg/Nm³	400 mg/Nm³		17.7, 82.0
5.	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6.	Hydrogen Fluoride	CPCB	0.5 mg/Nm3	4 mg/Nm³		BDL
7.	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5mg/Nm³	0.5mg/Nm³		0.058
8.	Cd + Tl + their compounds	CPCB	0.05mg/Nm³	0.05mg/Nm³		-
9.	Pb	CPCB	0.1mg/Nm³	Not prescribed		0.006
10.	Hg	CPCB	0.02mg/Nm³	0.05mg/Nm³		BDL
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	28.10.2020	0.49
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		5.1

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 7: 24 hourly average ambient air quality monitoring conducted by CPCB at WtE Plant Bawana

Parameters	Date of sampling	Monitored by	Prescribed Standard* (In µg/m³)	Measured values	
				Fire Station Bawana Location-I	Near main gate Location-II
PM_{10}	23-25 September, 2020	CPCB	100	131.33	89.33
$PM_{2.5}$			60	84.00	40
NO_2			80	36.33	17.00
SO_2			80	11.66	10.66

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 8: Analysis results of LOI and heavy metals in Bottom Ash and Fly Ash

Date of sampling	Parameters	Limit	Measured Values	
24 September, 2020	Loss on Ignition (for bottom ash only)	<5%*	1.67%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.08	0.69
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	BDL	BDL
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.01	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.02	0.04
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

BDL: for Lead <0.013 ug/l, Selenium < 0.019ug/l, for Copper < 0.003 ug/l, for Nickel < 0.003 ug/l, for Cobalt < 0.002 ug/l and Vanadium < 0.16 ug/l.
#Concentration Limit to categorize as hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Valid till 05-05-2021
II	Under Air Act (Copy enclosed)	Valid till 05-05-2021

14. Observations

During the inspection on 24-25, September, 2020 following observations were made.

a) The processing capacity of the plant is 2000 TPD. However, the plant receipts 2794 MT and 2600 MT of Municipal Solid Waste on 24.09.2020 & 25.09.2020 respectively, which is more than the consented capacity of the plant.

b) The unit has own segregation setup of MSW having 6 trommels with blastic separators for segregation of MSW and production of RDF. Ferrous waste is segregated manually as well as through magnetic separator installed at conveyor belt of ballistic separators. Plant Machinery Details DMSWSL Bawana is tabulated in table 9:

Table 9: Detailed machinery used during segregation of MSW

Section Wise	Equipment Name	Number of Machinery
Pre Sorting	Trommels- 50 mm	6 No's
	Ballastic Separator	4 No's
Preparatory Section	Trommels- 20 mm	4 No's
Refinement Section	Trommels- 4 mm	3 No's
Bio Mining	Puzolana	1 No's

c) As informed, total RDF generation in the plant is approximately 1500 TPD. As per the logbook RDF used as fuel in boilers on 24.09.2020 is tabulated at Table 10:

Table 10: RDF Feed Record on 24.09.2020

Sl. No.	Time	RDF Feeding (TPH)
1.	9-10 AM	54
2.	10-11 AM	52
3.	11-12 PM	56
4.	12-1.0 PM	58
5.	1.0-2.0 PM	56
6.	2.0-3.0 PM	52

d) Details of power generation ranges during the said inspection period is placed at **Figure 3.** It is observed that power during the monitoring was less than the (20-22.5 MW) below the rated power generation capacity (24 MW) of the plant-although the plant was processing waste at full capacity.

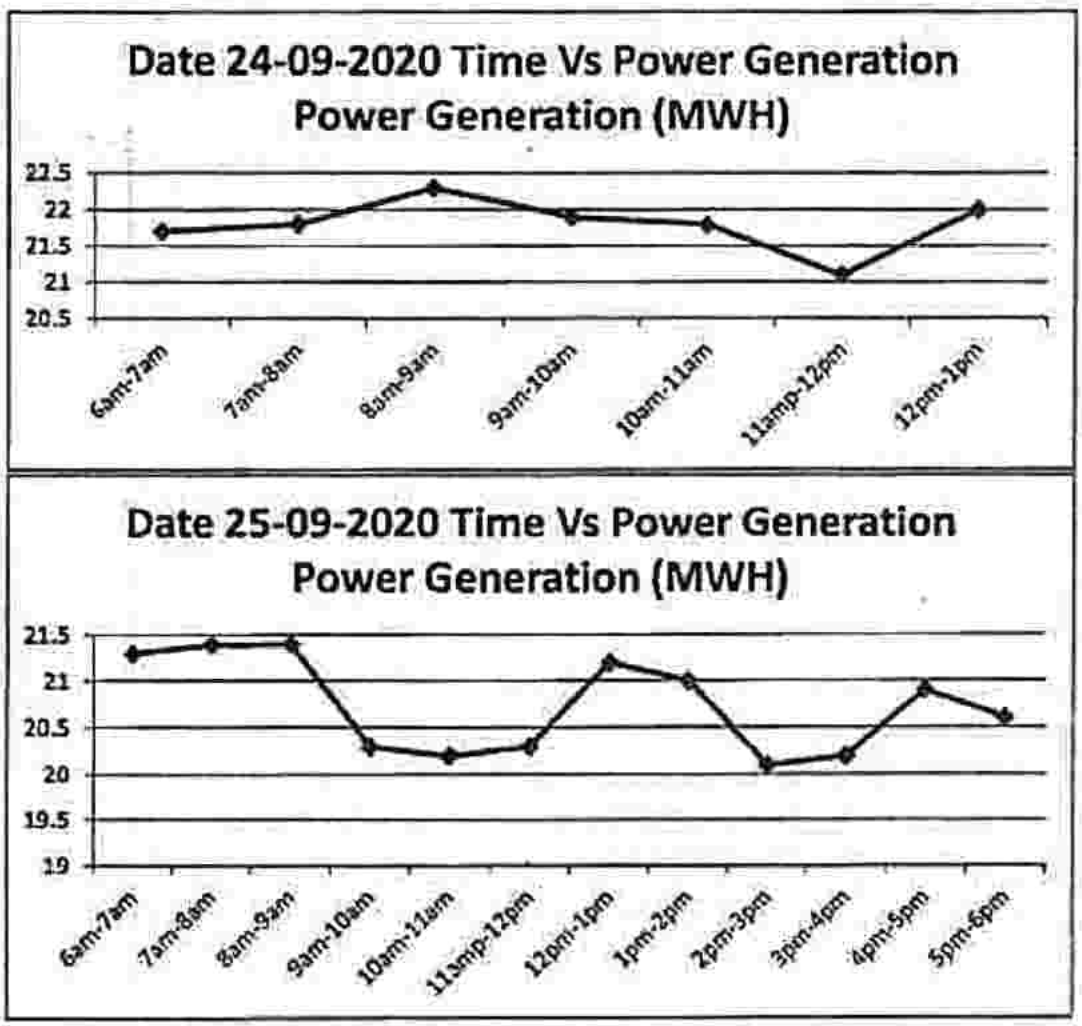


Figure 3: Time vs. power generation plot dated 24 & 25th September, 2020.

e) At the time of inspection on 24.09.2020, plant tripped due to grid fluctuation (High voltage) from 1 PM to 5.30 PM.

f) The two boilers and attached pollution control devices were found operational during monitoring. The temperature of furnace was maintained between 1142-1162°C.

g) Stack emission are tabulated in **Table 6**. It was observed that:

   I. Dioxin and Furans values (**0.49 ngTEq/Nm³**) are exceeding the permissible limit (**0.1 ngTEq/Nm³**) monitored by M/s. SRI, Delhi,

   II. Remaining parameters were within the stipulated norms.

h) Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCL in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 25.09.2020 are plotted in **Figure-4**. Comparison of OCEMS data with joint monitoring results is tabulated in **Table 11**. Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCL level as per actual monitoring is less than that reported by OCEMS. Also levels of PM, SO2 and NOx as per actual monitoring is less than that reported by OCEMS.

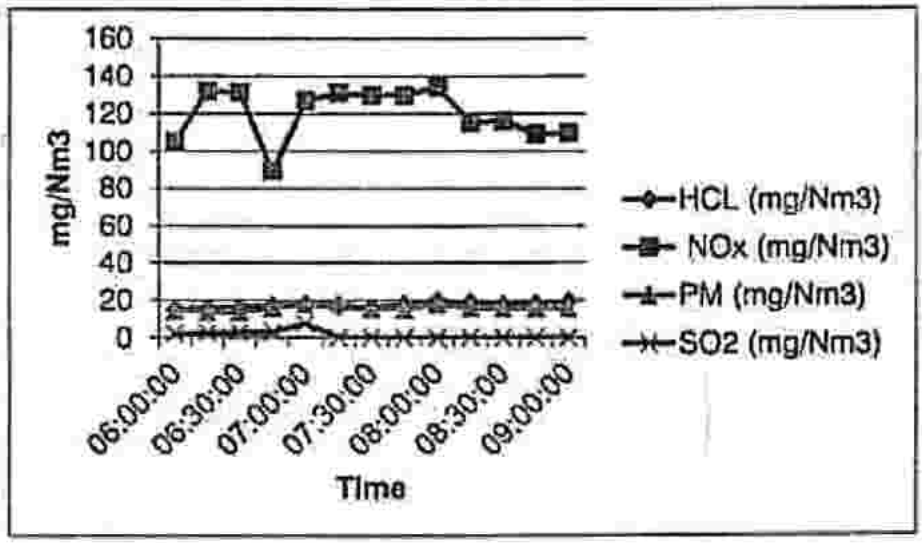


Figure 4: Online Continuous Emission Monitoring System (CEMS) data for PM, SO_2, NOx, and HCL on 24.09.2020.

Table 11: Comparision of OCEMS data and Joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint Inspection results
1.	PM mg/Nm3	13.8-18.41	12.8-16.7
2.	HCL mg/Nm3	15.02-19.48	3.35
3.	NO_x mg/Nm3	89.4-131.94	17.7-82
4.	SO_2 mg/Nm3	0.01-7.6	BDL

i) Ambient Air quality monitoring results are given in **Table 7**. It is observed that PM2.5 (84 µg/m³) & PM_{10} (131. 33 µg/m³) exceeded the prescribed limit (60 µg/m³ &100 µg/m³) at Fire Station Bawana. Concentration levels of the remaining parameters are within the stipulated norms.

j) Online Continuous Ambient air quality monitoring station (CAAQMS) has been installed at facility & data is tabulated in **Table 12** for 25.09.2020. It observed that values of PM_{10} exceeded the standard limit at 12.00 noon (176 µg/m³), 2.30 PM (166.5µg/m³), 3.15 PM (190.1µg/m³) and 4.00 PM (202.1µg/m³) whereas the limit of $PM_{2.5}$ exceeded at 4.00 PM. Other parameters such as SO_2 (6-6.9 µg/m³), NOx (12.9-19.5µg/m³) were found well within the standard limit.

Table 12: Online Continuous Ambient air quality monitoring (CAAQMS) data on 25-09-2020

Time	Parameters						
	SO_2 µg/m³	NO µg/m³	NO_2 µg/m³	NO_x µg/m³	PM_{10} µg/m³	$PM_{2.5}$ µg/m³	CO mg/m³
12.00 noon	6.9	-1.2	15.9	14.7	176	58.4	-0.46
1.00 PM	6.6	-1.2	17.0	15.7	35.3	-1.0	-0.45
2.30PM	5.6	-1.1	13.9	12.9	166.5	-0.6	-0.42
3.15PM	6.0	-1.2	15.6	14.3	190.1	37.8	-0.38
4.00PM	6.9	-.4	19.9	19.5	202.1	68.9	-0.36

k) Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash

are in **Table-8.** It is observed that monitored levels of all the parameters are within the specified limit.

l) Segregated rejects, bottom ash and fly ash are disposed into the sanitary landfill site existing within the facility premise at Bawana.

m) Lime and activated carbon are used as a dosing agent in flue gas. Amount of dosing used at the said inspection is plotted as **Figure 5.** The quantity of lime and activated carbon doused is observed to be in the range of 572-667kg/h and 16-23 Kg/hr respectively.

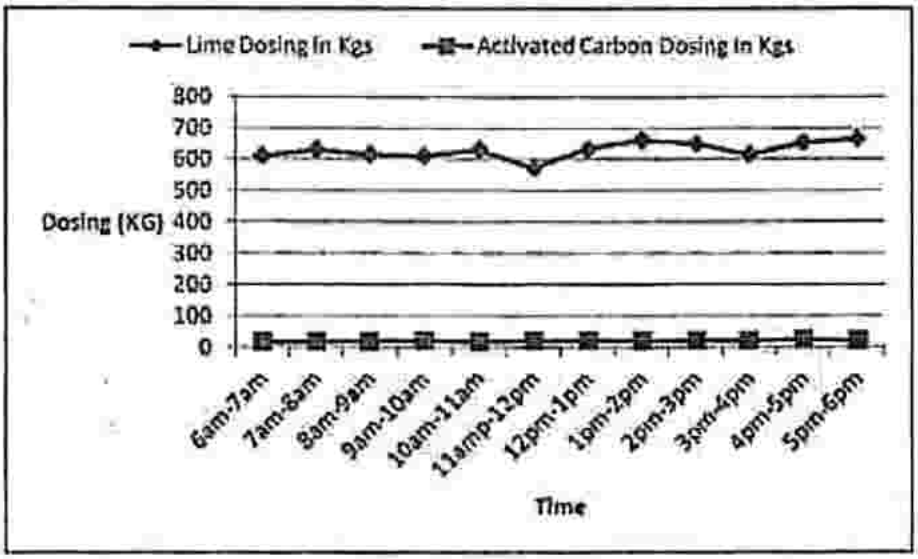


Figure-5: Amount of Lime and Activated Carbon used as dosing on 25-09-2020.

n) Leachate from Waste tipping floor, Windrows floor, sanitary landfill (within its premise) and the open pre-processed storage Area, are treated in the leachate treatment plant and treated water is being used for gardening, road wash etc.

o) Treated leachate analysis report is tabulated in **Table 13.** It has been observed that the values of TDS & Chloride of treated leachate exceeded the standard limit on Land disposal. It is observed that treated leachate is not complying the stipulated standards with respect to TDS & Chloride

Table: 13: Analysis report of treated leachate of Bawana WtE plant

S. No	Parameter	Land disposal (Standards as per SWM Rules, 2016)	Treated Leachate analysis report
1.	Suspended solids, mg/l, max	200	26
2.	Dissolved solids (inorganic) mg/l, max.	2100	6744
3.	pH value	5.5 to 9.0	
4.	Ammonical nitrogen (as N), mg/l, max.	-	1.7
5.	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
6.	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	25
7.	Chemical oxygen demand, mg/l, max.	-	261
8.	Arsenic (as As), mg/l, max	0.2	BDL
9.	Mercury (as Hg), mg/l, max	-	-
10.	Lead (as Pb), mg/l, max	-	BDL
11.	Cadmium (as Cd), mg/l, max	-	BDL
12.	Total Chromium (as Cr), mg/l, max.	-	0.02
13.	Copper (as Cu), mg/l, max.	-	BDL
14.	Zinc (as Zn), mg/l, max.	-	0.06
15.	Nickel (as Ni), mg/l, max	-	BDL
16.	Cyanide (as CN), mg/l, max.	0.2	-
17.	Chloride (as Cl), mg/l, max.	600	1564
18.	Fluoride (as F), mg/l, max	-	-
19.	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

p) As informed, M/s. Waste to Energy plant Bawana has placed order to M/s. Spray Engineering Devices Limited for purchase of 200 KLD Low Temp Evaporator with Mechanical Vapor Recompression (MVR) System.

q) As informed, after segregation 80 MT of compost is being generated per day and sold to the market.

r) Radioactive sensors are installed at entrance gate of the plant & was found working on the date of inspection.

s) Storage and segregation process of MSW being done within a covered area.

t) The facility is collecting solid waste since 2009 and legacy waste of about 0.8 Million MT is being stored in an open area of about 9 acres. This waste is also being processed in the plant.

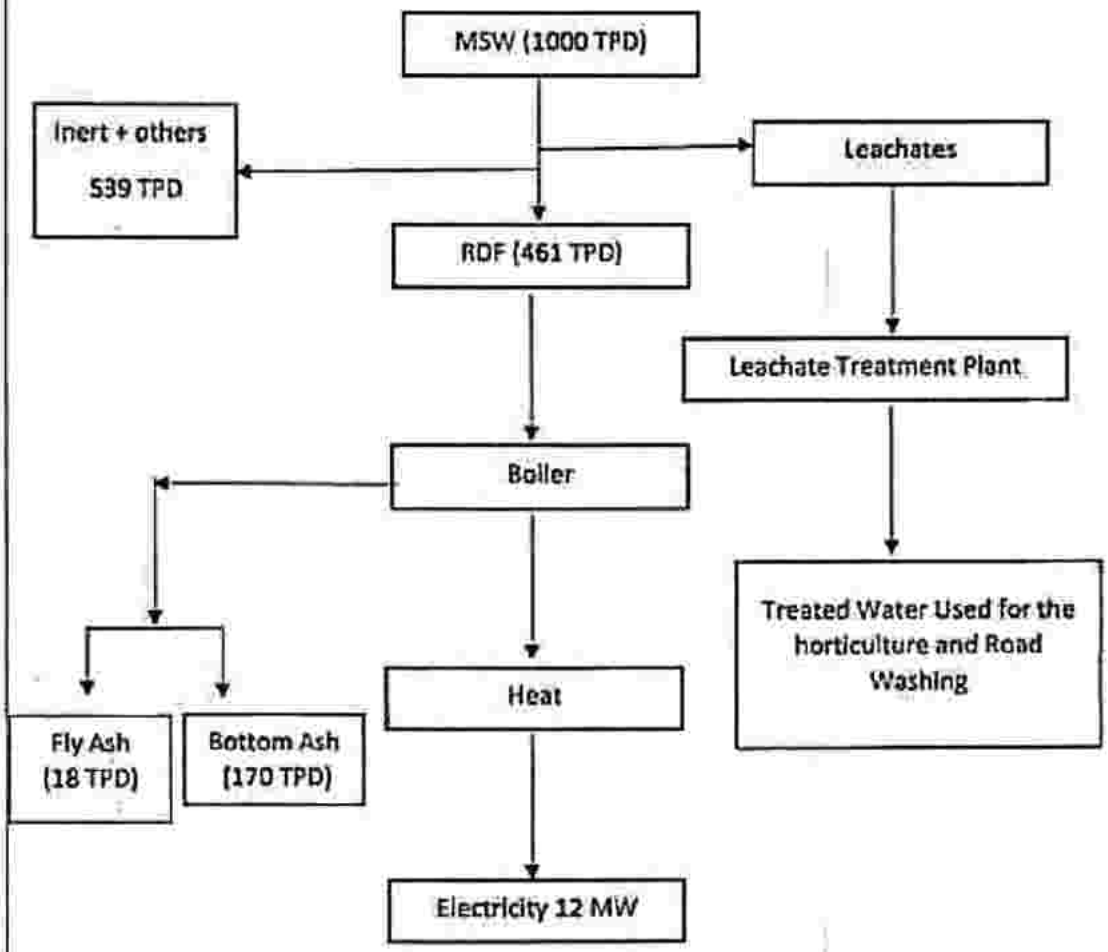
u) Plant has maintained considerable greenery inside the premises.

15. Recommendations

a) Plant should process the waste as per the consented capacity. The production process should be optimized so that power generated from the plant is as per the consented capacity of the plant.
b) Plant to properly control production process and pollution control measures to ensure that all parameters including Dioxin & Furans are within the stipulated norms.
c) Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ & PM_{10} concentration) in and around the plant.
d) OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
e) Time bound action plan to be submitted for implementation of Fly ash and inert material utilization measures.
f) Time bound Action Plan to be submitted for installation of Mechanical Vapor Recompression (MVR) system for leachate treatment.

Waste to Energy Plant Ghazipur

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s East Delhi Waste Processing Company Ltd. Adjacent to Veterinary Hospital Behind Ghazipur DDA Flats Ghazipur, Delhi- 110096 Lat. 28.622653, Long. 77.323398
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Iype George 8448592608 Iype.George@ilfsindia.com
3.	Date of inspection and monitoring	October, 13-14, 2020
4.	Installed processing Capacity	1300MT of Municipal Solid Waste (MSW) per day for the generation of 12MW electricity.
5.	Production status (on date of inspection)	Operational
6a.	Power Generation Authorized	12MW
6b	Actual Power Generation	**Details of power generation ranges during the said inspection** Date: 13.10.2020 — Power Generation range (MW) 6 AM-6 PM: 3.45 – 8.75

7.	**Process Flow Diagram** The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF. 

8. Air Pollution – Emission Sources & Control			
Sources of air pollution	**Chimney Details**	**APC Equipment**	**Emission Quality**
One boiler connected with one stack of the waste to energy plant	60 meters	Scrubbing system	Given in Table -14
9.	OCEMS Status	Installed with stack & was found operational during the inspection.	
10	Ambient Air Quality Conducted at two locations (Ghazipur Police station location-1 & Delhi Transco Limited Ghazipur Location-2)	Ambient Air Quality results are given in **Table – 15**	

11.	Continuous Ambient Air Quality Station	CAAQMS installed but was not working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are given in **Table - 16**

Table 14. Analysis results of the stack emission monitoring of the WTE plant, Ghazipur monitored and analyzed by CPCB.

S. No	Parameters	Monitored by	Standards as per consent to operate issued by DPCC	Standard as per Solid waste Management Rules,2016	Date of Sampling	Measured Values Stack-1 (Average)
1	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	13-14 October, 2020	62.7, 85.1
2	HCL	CPCB	50 mg/Nm³	50 mg/Nm³		407
3	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, 3.4
4	NOx (NO and NO2 expressed No2)	CPCB	350 mg/Nm³	400 mg/Nm³		869, 104.3
5	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6	Hydrogen Fluoride	CPCB	0.5 mg/Nm³	4 mg/Nm³		BDL
7	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5 mg/Nm³	0.5 mg/Nm³		0.164
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm³	0.05 mg/Nm³		0.002
9	Pb	CPCB	0.1 mg/Nm³	Not prescribed		0.019
10	Hg	CPCB	0.02 mg/Nm³	0.05 mg/Nm³		0.21
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	13.10.2020	0.27
12	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		9.4

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 15. 24 hourly ambient air quality monitoring conducted by CPCB

Parameters	Date of Sampling	Monitored by	Prescribed Standard*	Measured values	
				Ghazipur Police station location-1	Delhi Transco Limited Ghazipur Location-2
$PM_{2.5}$	October 13-15	CPCB	60	127	215
PM10			100	273.66	404
NO2			80	42.833	31
SO2			80	BDL	15.66

BDL for SO2 is < 4ug/m3

**National ambient air quality standards as notified under the air (prevention and control of pollution) Act 1981.*

Table 16: Analysis results of LOI and heavy metals in Bottom ash and Fly ash

Date of sampling	Parameters	Limit	Measured values in %	
13.10.2020	Loss on ignition (For bottom Ash only)	<5%*	1.89	
			Bottom ash	Fly Ash
	Arsenic	5 mg/l #	BDl	BDL
	Cadmium	1 mg/l #	0.52	0.14
	Chromium	5 mg/l #	BDL	BDL
	Manganese	10 mg/l #	3.01	3.15
	Lead	5 mg/l #	0.08	0.04
	Selenium	1 mg/l #	BDL	BDL
	Copper	25 mg/l #	1.52	0.83
	Nickel	20 mg/l #	0.42	0.20
	Zinc	250 mg/l #	10.79	11.43
	Cobalt	80mg/l #	0.12	0.11
	Vanadium	24mg/l #	BDL	BDL
	Antimony	15mg/l #	0.36	0.05

Note: BDL for arsenic <0.022 mg/l BDL for Chromium<0.002 mg/l BDL for Manganese for Lead<0.013 BDL for Nickel BDL, 0.003 mg/l for Cobalt BDL< mg/l for Vanadium BDL<0.16 mg/l

#Concentration Limit of categorise as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under Environment (Protection) Act, 1986. Facility for fly ash and inert material utilization are yet to installed.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Expired on 08-12-2018, applied for renewal of the same
II	Under Air Act (Copy enclosed)	Expired on 08.12.2018, applied for renewal of the same

14.0 Observations

a. The plant is operating without valid consent. The plant was given Consent-to Operate which was valid upto 08.12.2018. The unit has applied for renewal of Consent.

b. The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF. However, the same was not operational at the time of inspection. Operator informed that the same is under maintenance.

c. Segregation of waste was being done in partially covered area.

d. The plant was receiving RDF from bio-remediation of waste from Ghazipur dumpsite. No MSW was received from EDMC on that day. Hence, the plant was operating at level much below as per its last consent.

e. The plant does not have composting facility for wet waste and disposing wet waste when generated in the dumpsite.

f. Average feed rate of the RDF to one boiler was observed at 33 MT/hr. As per the logbook total RDF used as fuel in boilers from 6 AM to 6 PM on 13.10.2020 is given in **Table 17.**

Table 17: RDF Feed Record

Time	Fuel Feed to Boiler MT
6:00 AM	35.28
7:00 AM	35.1
8:00 AM	33.25
9:00 AM	35.89
10:00 AM	36.25
11:00 AM	28.95
12:00 PM	31.25
1:00 PM	32.25
2:00 PM	32.65
3:00 PM	33.25
4:00 PM	31.58
5:00 PM	32.58
6:00 PM	31.58
Total Feed	429.86

g. Details of power generation ranges during the said inspection period is given in Figure 6. The power generation on 13.10.2020 was in the range of 3.45-8.75 MW which is much less than the rated power generation capacity of 12 MW. Captive power utilization of the plant is about 2 to 2.5 MW.

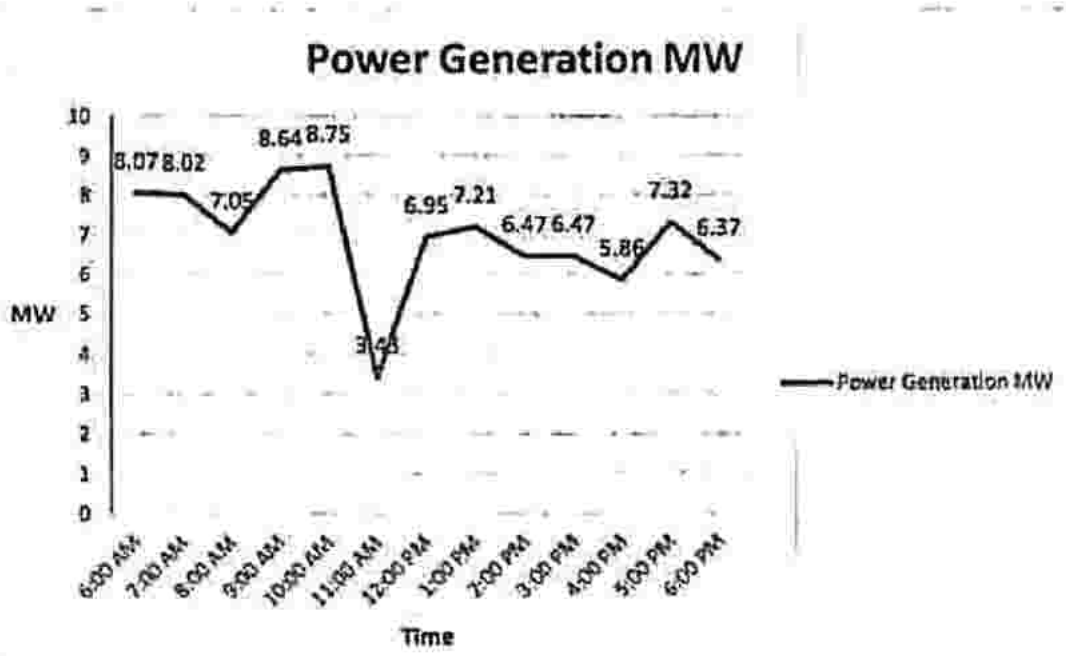


Figure 6: Time vs. power generation plot dated 13th October, 2020.

h. One boiler along with pollution control devices was found operational. The average temperature of furnace was maintained most of the time was 950° C.

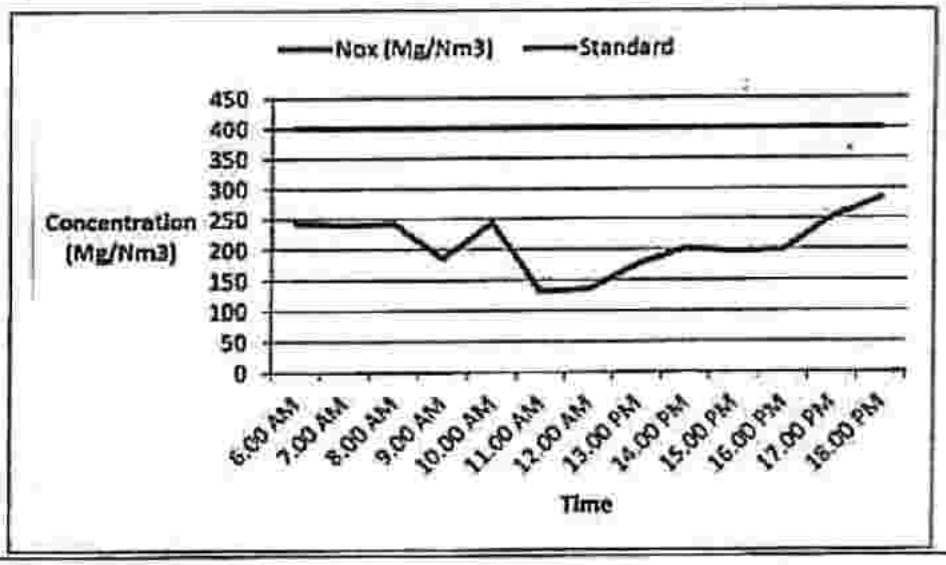
l. Stack emission results are given in **Table 14.** The following are the observations.

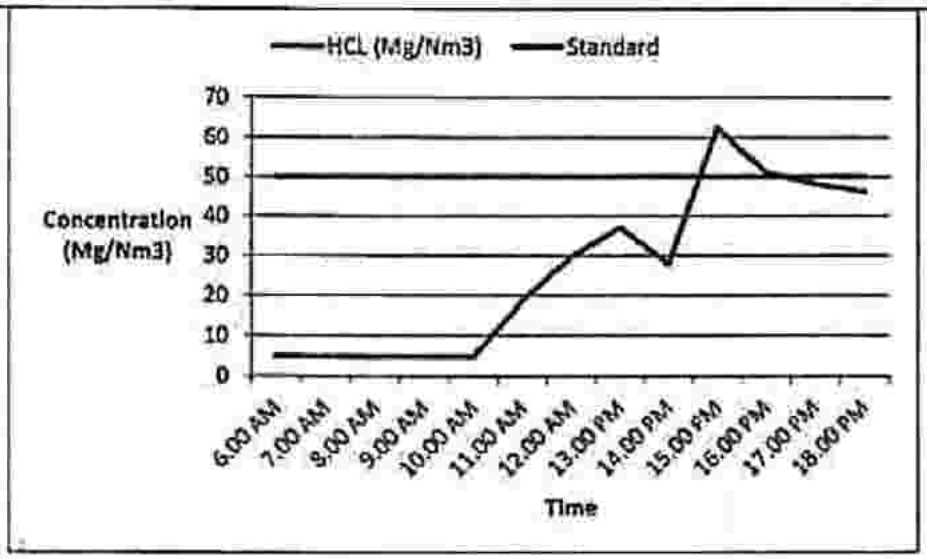
i. **Dioxin and Furans** values (**0.27ngTEq/Nm³**) of stack monitoring exceeded the permissible limit (**0.1 ngTEq/Nm³**) monitored by M/s. SRI, Delhi.

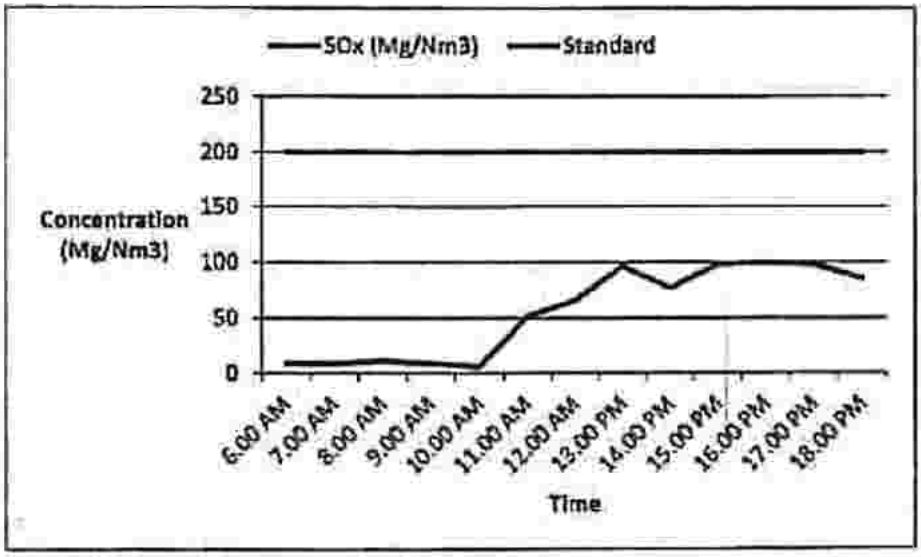
ii. **PM (62.7 & 85.1 mg/Nm³), NOx (869 mg/Nm³) and HCl (407 mg/Nm³) concentrations were exceeding the permissible limits** (30, 350 & 50 mg/Nm³ respectively)

iii. Remaining parameters were well within the limit.

j. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection except for monitoring PM. Results obtained from OCEMS on 13.10.2020 are plotted in **Figure-7.** Comparison of OCEMS data with joint monitoring results is tabulated in **Table-18.** Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl & NOx level as per actual monitoring was more than that reported by OCEMS. Whereas, SOx as per joint monitoring is lower than the OCEMS result.




HCL (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
70
60
50
40
30
20
10
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time


SOx (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
250
200
150
100
50
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

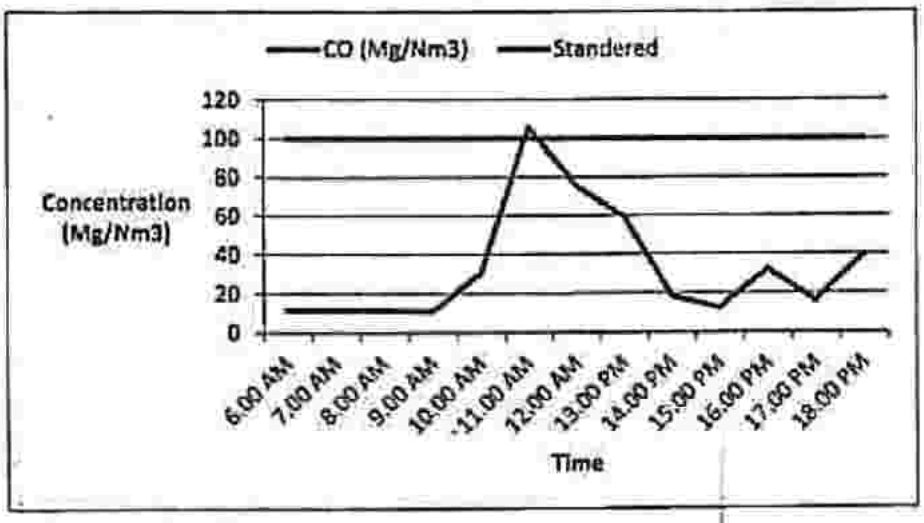

CO (Mg/Nm3)
Standered
Concentration (Mg/Nm3)
120
100
80
60
40
20
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

Figure 7: Online Continuous Emission Monitoring System (OCEMS) data for NOx HCL, SOx, and CO on 13.10.2020.

Table 18: Comparison of OCEMS & Joint Monitoring data of the stack emission

Sl. No.	Parameters	OCEMS	Joint Inspection results
1.	PM mg/Nm3	Not working	62.7-85.1
2.	HCL mg/Nm3	4.86-51.13	407
3.	NOx mg/Nm3	132.4-251.71	869-104.3
4.	SO2 mg/Nm3	5.79-98.25	BDL
5.	CO	11.35-105.61	Not monitored

j. Ambient Air quality monitoring results are given in **Table-15.** It is observed that PM2.5 & PM_{10} at Ghazipur Police station & Delhi Transco Ltd. **(127 µg/m³ & 215 ug/m³ and 273 ug/m³ & 404 ug/m³ respectively)** exceeded the standard of prescribed limit (PM2.5 : 60 µg/m³ & PM10 100 µg/m³). Concentration levels of the remaining parameters are within the stipulated norms.

k. Continuous Ambient Air Quality Monitoring Station (CAAQMS) was not operational during the inspection.

l. Lime, Powered Activated Carbon (PAC) and Urea are used as dosing agents in Flue gas. A graph has been plotted for Lime, Powered Activated Carbon (PAC) and Urea used on 13.10.2020 during 6.00AM to 6PM as shown in **Figure 8.** The quantity of Lime, activated carbon and urea doused is observed to be in the range of 140-168kg/h, 4-6 kg/h and 20-28.32 Kg/hr respectively.

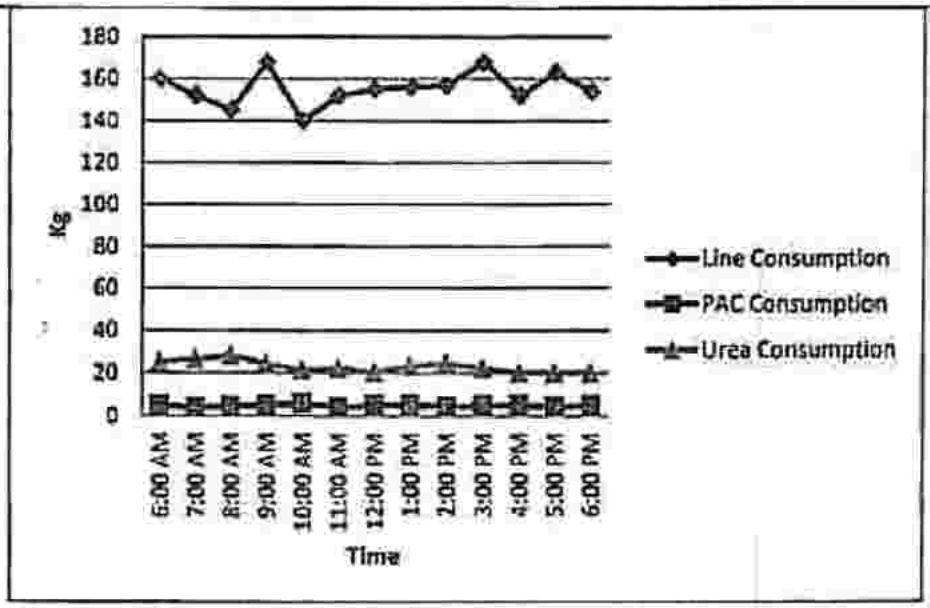


Figure-8: Amount of Lime, Activated Carbon and urea used as dosing on 13.10.2020.

m. Analysis reports of loss of Ignition (LOI) and heavy metals in fly ash and bottom ash are given in **Table-16.** It is observed that monitored levels of all the parameters are within the specified limit.

n. The plant is dumping Bottom Ash, Fly Ash & Inerts at Ghazipur Dumpsite. WtE plant Ghazipur is not utilizing Fly ash for beneficial purposes like bricks manufacturing etc.

o. Leachate Treatment plant has been installed and treated leachate is being used for gardening, road waste etc.

p. During inspection, Treated Leachate Treatment plant was found operational. Treated leachate analysis report is tabulated in **Table-19.** It has been observed that the value of TDS of treated leachate exceeded the standard limit on Land disposal.

Table 19: Analysis report of treated leachate

S. No	Parameter	Land disposal (Standards)	Treated Leachate analysis report
	Suspended solids, mg/l, max	200	47
	Dissolved solids (inorganic) mg/l, max.	2100	2532
	pH value	5.5 to 9.0	-
	Ammonical nitrogen (as N), mg/l, max.	-	3.0
	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	18.2
	Chemical oxygen demand, mg/l, max.	-	92
	Arsenic (as As), mg/l, max	0.2	BDL
	Mercury (as Hg), mg/l, max	-	-
	Lead (as Pb), mg/l, max	-	BDL
	Cadmium (as Cd), mg/l, max	-	BDL
	Total Chromium (as Cr), mg/l, max.	-	BDL
	Copper (as Cu), mg/l, max.	-	0.03
	Zinc (as Zn), mg/l, max.	-	1.25
	Nickel (as Ni), mg/l, max	-	BDL
	Cyanide (as CN), mg/l, max.	0.2	-
	Chloride (as Cl), mg/l, max.	600	-
	Fluoride (as F), mg/l, max	-	-
	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

q. Unit has not fixed radioactive sensors on the way of MSW loaded truck.

r. During inspection all drains within the premises were found chocked & MSW found scattered on roads inside the plant.

s. Plant has not maintained considerable greenery inside the premises.

15. Recommendations

i. The plant has to upgrade its production process and emission control measures to ensure that the emission levels of all parameters including (PM, HCL, NOx, Dioxin & Furans) are within the stipulated limits.
ii. Plant should implement necessary measures to improve air quality (PM2.5 & PM10) in and around the plant.
iii. OCEMS installed in the plant to be calibrated to ensure that OCEMS data matches with the actual monitoring results.
iv. The plant has to ensure that CAAQMS installed in their premises is operational at all times and the display board for the same should be made functional.
v. The plant should upgrade leachate treatment procedure so as to improve the treated leachate quality before spreading over land.
vi. The plant has to provide facility for treatment of wet waste.
vii. The segregation process of MSW of the plant has to be made operational to improve efficiency of the plant.
viii. The plant has to be obtained valid consent to operate from DPCC.
ix. The plant has to ensure that it is operational at full capacity when the joint inspection of the unit is carried out so that the monitoring results are conclusive.
x. Time bound Action Plan to be submitted for utilization of fly ash and inert material.
xi. Green Belt has to be developed around the plant as per Buffer zone Guidelines for waste processing processing facilities Issued by CPCB.
xii. Unit has to fix radioactive sensors at suitable places to effectively monitor the entering in the plant.
xiii. House Keeping needs to be improved.

Name & designation of Inspecting officer(s)	(Ratnesh Kumar), Sc.'B', CPCB Delhi	(Ramesh Chandra) EE, DPCC Delhi	Atanu Dey, RA-I, CPCB
Signature			

ANNEXURE-I

**BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI**

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 THC**

**Sukhdev Vihar Residents Welfare Association & Ors.
Vs.
State of NCT of Delhi & Ors.**

CORAM : HON'BLE MR. JUSTICE SWATANTER KUMAR, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE RAGHUVENDRA S. RATHORE, JUDICIAL MEMBER
HON'BLE MR. BIKRAM SINGH SAJWAN, EXPERT MEMBER

Present: **Applicant:** Ms. Alpana Podder, Adv. with Mr. Bhupender Kumar, LA, Central Pollution Control Board , Applicant in M.A.

Respondent. : Mr. Tarunvir Singh and Ms. Guneet Khehar, Advs.
Ms. Sakshi Popli, Adv. for Delhi Jal Board
Mr. Krishna Kumar Singh, Adv. for Ministry of Environment, Forest and Climate Change
Ms. Priyanka Swami, Adv. for Nagar Nigam Ghaziabad
Mr. Biraja Mahapatra, Adv. and Mr. Dinesh Jindal, LO for Delhi Pollution Control Committee

	Date and Remarks	Orders of the Tribunal
	Item No. 12 October 09, 2017 mam	**M.A. No. 1168 of 2017** It is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Ferrons. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of ambient air quality once in four months, they shall also conduct at lease two surprise inspections and analysis be made in a year. With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost. .....,CP (Swatanter Kumar)

Item No.
12

October
09, 2017

***

.....,JM
(Dr. Jawad Rahim)

.....,JM
(Raghuvendra S. Rathore)

.....,EM
(Bikram Singh Sajwan)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

Sukhdev Vihar Resident's Welfare Association
Vs.
State of Delhi & Ors.

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL,CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: Respondent: **Mr. Nilava Bandyopadhyay, Adv. for Project Proponent, Okhla Project**

	Date and Remarks	Orders of the Tribunal
	Item No. 6 **September 27, 2018** **R**	1. In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the Central Pollution Control Board and the Delhi Pollution Control Committee. Findings in the report are that the Waste-to-Energy Plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of the particulate matter. Following recommendations have been made: **"Recommendations:** *1. To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.* *2. Plant should adopt technologies to reduce Moisture Content in RDF.* *3. Fly ash utilization should be done rather than dumping it on landfill site.* *4. Unit shall install Fly ash bricks manufacturing unit.* *5. Flow meters shall be installed at inlet and outlet of Leachete treatment plant.* *6. Plant should adopt technologies to improve calorific value of RDF.* *7. Plant shall be designed for 30 35 years."* 2. The Central Pollution Control Board may send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste-to-Energy Plant for compliance and conduct another inspection within one

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
Principal Bench, New Delhi
In
Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

In the Matter of: -

Sukhdev Vihar Resident's Welfare Association — **Applicant(s)**

Vs.

State of Delhi & Ors. — **Respondent(s)**

Index

Sr. No.	Particulars	Page No.
1.	Compliance Report of Waste to Energy Plants in Delhi (Period: February-March, 2020) in compliance to Hon'ble NGT, PB order dated 09.10.2017 and 27.09.2018 in the matter of O.A. No. 640/2018 (Earlier O.A. No. 22/2013) titled as Sukhdev Vihar Resident's Welfare Association. Vs. State of Delhi & Ors.	
2.	**Annexure-I:** A copy of Hon'ble NGT order dated 09.10.2017.	
3.	**Annexure-II:** A copy of Hon'ble NGT order dated 27.09.2018.	

(Divya Sinha)
Scientist 'E'
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi-110032

Place: Delhi
Date: 24th September, 2020

Compliance Report of Waste to Energy Plants in Delhi

(Period: February-March, 2020)

As per Hon'ble NGT Vide its Order dated 09/10/2017, in OA No. 22 of 2013 T_{HO} & dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013)

CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment, Forest &Climate Change, Govt. of India)
'Parivesh Bhawan' C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi-110032
E-mail:divsinha@yahoo.com, Website- www.cpcb.nic.in

September, 2020

1. Background

1.1. Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 THC directed Central Pollution Control Board to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year" .

1.2. Further Hon'ble NGT vide its order dated September 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013), issued the following directions

i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection of Waste to Energy Plants at Delhi has been conducted by the CPCB and the DPCC. Findings of reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*

ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for reliving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"*

iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

In view of above directions, monitoring was planned during January, 2020.However, due to Delhi Assembly Election it could not be carried out. The Three Waste to Energy Plants were subsequently monitored by CPCB & DPCC joint inspection team during February-March 2020. The members of joint committee i.e. representatives fromMoEF&CC, expert from IIT Delhi and

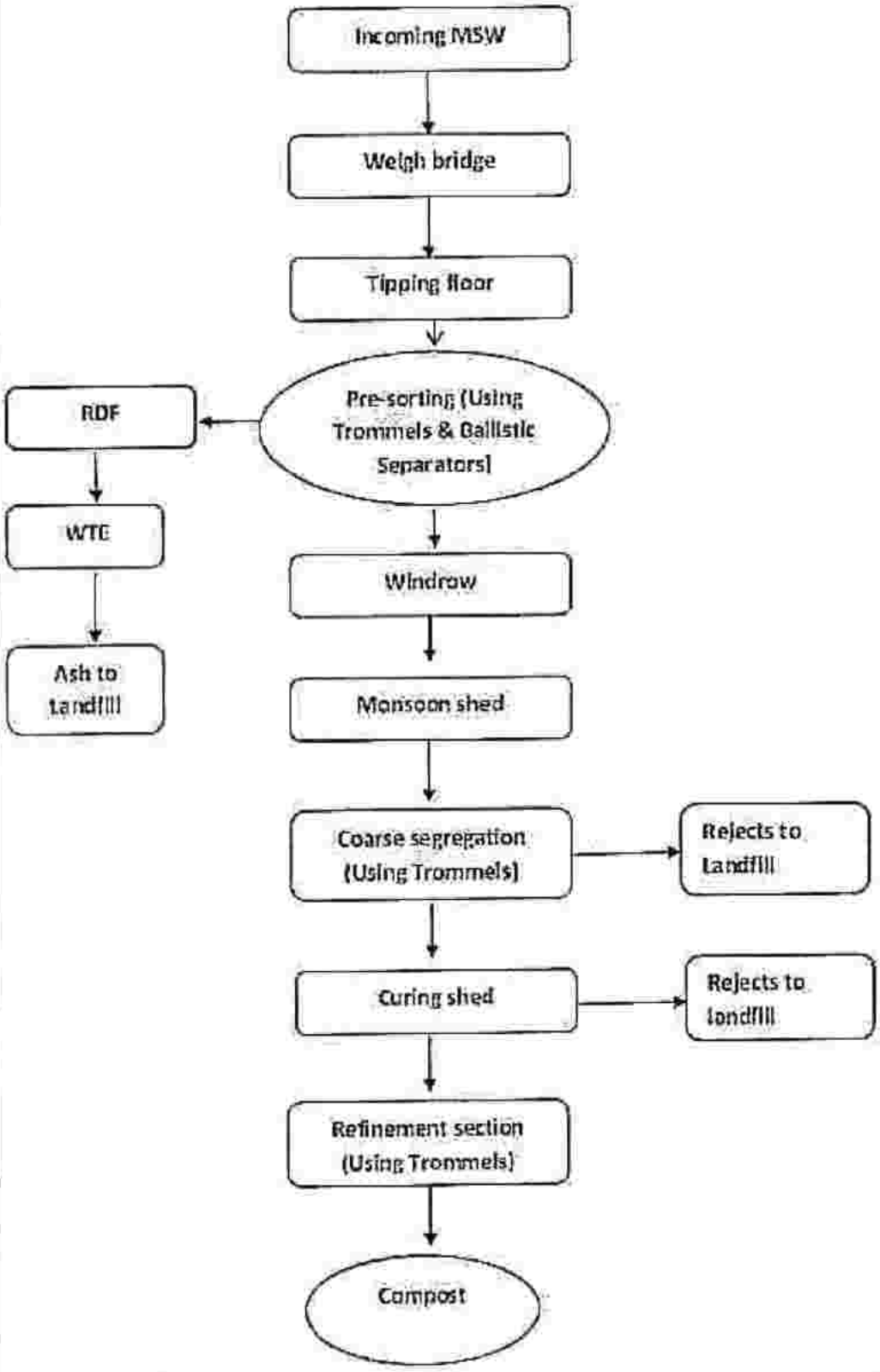
representative of Sukhdev Vihar RWA (For Okhla Waste to Energy Plant) were informed vide email dated February 19 & March 09, 2020 regarding inspection schedule. Expert from IIT Delhi was present during inspection of Waste to Energy Plant Okhla. RWA representative did not join the inspection. The details of the monitoring have been covered in the following sections.

Waste to Energy Plant Bawana

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Delhi MSW Solutions Ltd. Pocket N-1, Sector-5, Bawana Industrial area, Behind Pragati Power Plant Delhi-110039 Latitude Extension: 28°47'58.36"N Longitudinal Extension: 77° 04'11.79"E
2.	Name of the occupier/contact person with Telephone Fax E-mail	K Vijay Kumar Reddy Mob. 9821124350 laboratorynarela@ramky.com
3.	Date of inspection and monitoring	February 25-26, 2020
4.	Installed processing Capacity	2000 TPD Processing and Disposal facility with 24 MW Waste to Energy Plant
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection Date: Power Generation range (MW) 6 AM- 6 PM 25.02.2020: 18.3-20.9 26.02.2020: 19.1-20.1

7. Process Flow Diagram:

DMSWSL PLANT PROCESS FLOW SHEET



8. Air Pollution – Emission Sources & Control			
Sources of air pollution	**Chimney Details**	**APC Equipment**	**Emission Quality**
Stack of the Waste to Energy plant	60mtrs	Reaction Tower (lime Spray reactor), Activated Carbon Injection followed by Bag filters.	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SIIR, Delhi. Results are given in **Table-1**
9.	OCEMS Status	Installed with stack & was found operational during the inspection.	
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality Status given in **Table - 2.**	
11.	Continuous Ambient Air Quality Station	CAAQMS installed & was working	
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ashare given in **Table-3**	

13. Status of validity & compliance of consent and authorization		
	Consent/Authorization	Validity
I	Under Water Act (Copy to be enclosed)	Valid till 05-05-2021
II	Under Air Act (Copy to be enclosed)	Valid till 05-05-2021

14. **OBSERVATIONS**

During the inspection on 25-26, February,2020 following observations were made.

a) The plant has obtained consent to operate dated 22.02.2017 for processing of 2000 Tons per day of solid waste and power generation of 24 MW. Consent of the plant is valid upto 05.05.2021.

b) The plant operated at full capacity during inspection.The plant processed 2430 MT and 2487 MT of Municipal Solid Waste on 25.02.2020 & 26.02.2020 respectively.

c) The rated capacity of the plant is 24MW, however the power generation at the time of inspection was in the range of 18.3- 20.1 MW; thus although the plant was operated at full capacity of waste feed, i.e., in terms of processing of waste, the corresponding power generation was not up to the installed capacity.

d) Both the boilers along with pollution control devices of the waste to energy plant were found operating at the time of inspection.

e) Radioactive sensors, installed at entrance of the facility were operational during inspection

f) The segregation sections of the plant were found operational during inspection. It was observed that the waste being fed into the boiler is segregated.

g) Ferrous waste is segregated manually as well as through magnetic separator installed at conveyor belt of ballistic separators.

h) The facility is collecting solid waste since 2009 and legacy waste of about 0.8 Million MT is being stored in an open area of about 9 Acres. This waste is also being processed in the plant

i) Since commencement of trial operation of boilers in June 2016, approximately 400-450 tons/day waste from the said stored waste is being used in the boilers. Project Proponent informed that legacy waste will be consumed in next one year.

j) Online Continuous Emission Monitoring System (CEMS) for PM, SO_2, NOx and HCL in the stack emission has been installed and the same was found working at the time of inspection.

k) Continuous Ambient air quality monitoring station (CAAQMS) has been installed & the same was found working, at the time of inspection.

l) Segregated rejects, bottom ash and fly ash are disposed into the sanitary landfill site existing within the facility premise at Bawana.

m) As per the monitoring results of stack emission, all parameters are complying with the stipulated norms

n) $PM_{2.5}$ and PM_{10} values of ambient air quality monitoring at both the locations were exceeded the permissible limits. Concentration levels of the remaining parameters are within the stipulated norms

o) Concentration value of Cadmium in the fly ash exceeds the permissible limit.

15.Recommendations

a) To ensure better efficiency of the Plant and optimum power generation the unit should further improve further waste segregation.

b) The plant should take necessary measures to reduce fugitive emissions specifically during material handling, soas to reduce PM_{10}& $PM_{2.5}$ value concentrations in ambient air

c) Required efforts to reuse the Bottom ash, Fly ash utilization should be made instead of dumping it on landfill site.

d) The plant should identify the source of cadmium and minimize the same so as bring the Cadmium concentration levels in fly ash within the stipulated limits. (1 mg/l[#])

Name & designation of inspecting officer(s)	(Ratnesh Kumar), Sc.'B', CPCB Delhi	(Ramesh Chandra) EE, DPCC Delhi
Signature	R.Ku	

Table 1. Analysis results of the stack emission monitoring of the WTE plant Bawana.

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values in mg/Nm^3
1.	Particulate Matter	CPCB	30 mg/Nm^3	50 mg/Nm^3	25-26 Feb, 2020	29.4, 27.3
2.	Hydrogen Chloride	CPCB	50 mg/Nm^3	50 mg/Nm^3		1.3
3.	SO_2	CPCB	100 mg/Nm^3	200 mg/Nm^3		35.2, 32.8
4.	NO_X	CPCB	350 mg/Nm^3	400 mg/Nm^3		64.3, 144.2
5.	Carbon Monoxide	CPCB	100 mg/Nm^3	100 mg/Nm^3		0
6.	Hydrogen Fluoride	CPCB	0.5 mg/Nm^3	4 mg/Nm^3		BDL
7.	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5mg/Nm^3	0.5mg/Nm^3		0.005
8.	Cd + Th + their compounds	CPCB	0.05mg/Nm^3	0.05mg/Nm^3		BDL
9.	Pb	CPCB	0.1mg/Nm^3	Not prescribed		0.002
10.	Hg	CPCB	0.02mg/Nm^3	0.05mg/Nm^3		BDL
11.	Dioxin & Furans	M/s SIIR, Delhi	0.1ngTEq/Nm^3	0.1ngTEq/Nm^3	26.02.2020	0.0199 ng TEQ/Nm^3
12.	Total Organic Compounds (as C) at 11% O_2		20 mg/Nm^3	20 mg/Nm^3		3.4

* BDL for SO_2 is <1.0 mg/Nm^3, BDL for HF is <1.0 mg/Nm^3, BDL for Hg < 1.0 µg/Nm^3

Table 2: 24 hourly average ambient air quality monitoring conducted by CPCB at WtE Plant Bawana

Parameters	Date of sampling	Monitored by	Prescribed Standard* (in µg/m³)	Measured values	
				Fire Station Bawana Location-I	Near main gate Location-II
PM_{10}	25-26 February, 2020	CPCB	100	309.33	268.33
$PM_{2.5}$			60	216	203
NO_2			80	55.5	43.88
SO_2			80	28.00	19.66

National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.

Table 3:Analysis results of LOI and heavy metals in Bottom Ash and Fly Ash

Date of sampling	Parameters	Limit	Measured Values	
25 Feb, 2020	Loss on Ignition (for bottom ash only)	<5%*	1.51%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	0.01	0.01
	Cadmium	1 mg/l#	0.01	5.12
	Chromium	5 mg/l#	0.01	0.20
	Manganese	10 mg/l#	0.95	1.23
	Lead	5 mg/l#	0.01	0.15
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.22	0.17
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250mg/l#	BDL	BDL
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	0.07	BDL
	Antimony	15 mg/l#	BDL	0.12

BDL: for Lead <0.013 ug/l, Selenium < 0.019ug/l, for Copper < 0.003 ug/l, for Nickel < 0.003 ug/l, for Cobalt < 0.002 ug/l and Vanadium < 0.16 ug/l.
#Concentration Limit to categorize as hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

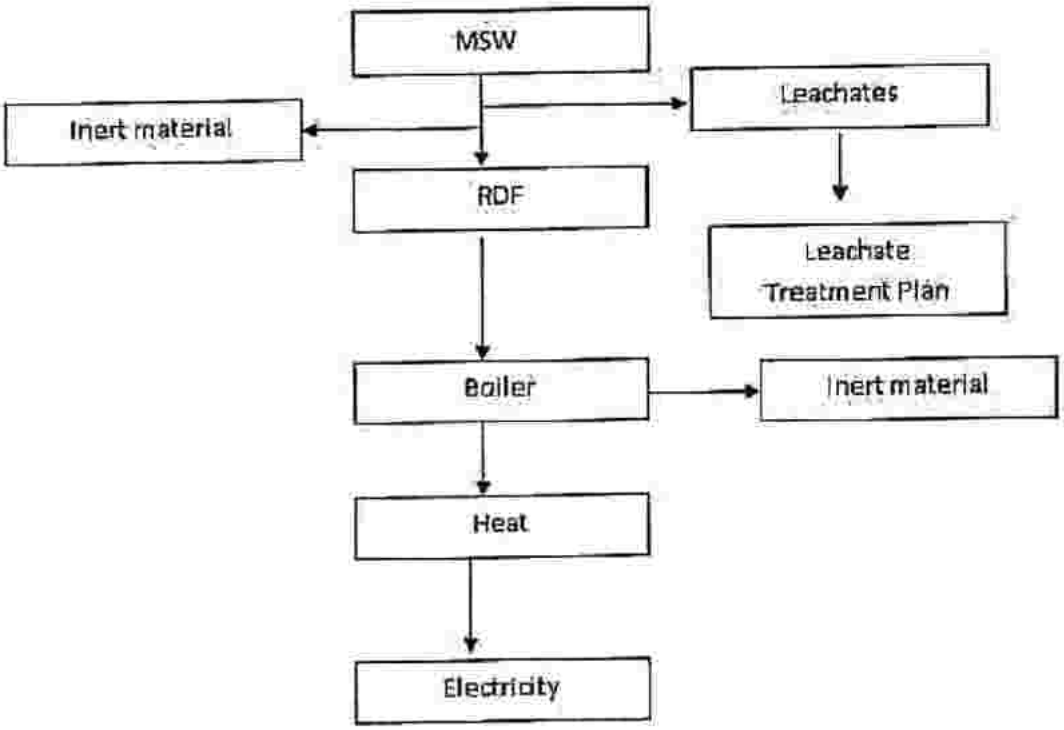
Waste to Energy Plant Ghazipur

CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s East Delhi Waste Processing Company Ltd. Adjacent to Veterinary Hospital Behind Ghazipur DDA Flats Ghazipur, Delhi- 110096 Lat. 28.622653, Long. 77.323398
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Iype George 8448692608 Iype.George@ilfsindia.com
3.	Date of inspection and monitoring	March 5-6, 2020
4.	Installed processing Capacity	1300MT of Municipal Solid Waste (MSW) per day for the generation of 12MW electricity.
5.	Production status (on date of inspection)	Plant was operating on 3.22 MW power generation capacity on 06.03.2020.
6a.	Power Generation Authorized	12MW
6b	Actual Power Generation	**Details of power generation ranges during the said inspection**

Date	Power Generation range (MW) 6 AM- 6 PM
05.03.2020	3.43 - 7.94
06.03.2020	0.01 - 6.69

7.	Process Flow Diagram



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Two boilers connected with one stack of the waste to energy plant	60 meters	Scrubbing system	Given in Table -4

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality results are given in **Table – 5**
11.	Continuous Ambient Air Quality Station	CAAQMS installed but was not working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are given in **Table - 6**

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy to be enclosed)	Expired on 08.12.2018, applied for renewal of the same
II	Under Air Act (Copy to be enclosed)	Expired on 08.12.2018, applied for renewal of the same.

14.0 Observations

I. The plant has been given Consent-to-Operate for processing of 1300 TPD of solid waste and subsequent generation of power. Consent to operate was valid upto 08.12.2018. The unit has applied for renewal of Consent.
II. The plant is not operational at full capacity. The plant received 301.13 T & 228.32 T of mixed municipal solid (MSW) waste on 05.03.2020 & 06.03.2020 respectively which was much less than the installed processing capacity of 1300 TPD.
III. The power generation is in the range of 0.01 – 7.94 MW which is much less than the rated power generation capacity of 12 MW. Captive power utilization of the plant is about 2 to 2.5 MW.
IV. PM, NO_x and Pb concentrations in stack emissions are exceeding the permissible limits.
V. All values monitored in ambient air are within the stipulated norms.
VI. Continuous Ambient Air Quality Monitoring Station (CAAQMS) was not operational during the inspection.
VII. Unit has not fixed radioactive sensors on the way of MSW loaded truck.
VIII. The plant is dumping Bottom Ash, Fly Ash &inerts in Ghazipur Dumpsite WtE plant Ghazipur Is not utilizing 100% Fly ash for beneficial purposes like bricks manufacturing etc.
IX. Concentration value of Cadmium in the fly ash exceeds the permissible limit.
X. On 06.03.2020 the plant was suddenly shut down at 2.58 PM due to wet RDF & hence Dioxin & Furan Monitoring could not be carried out. The plant remain shut for more than a week and after that due to lock down the Dioxin & Furan monitoring was not carried out at Waste to Energy Plant Ghazipur.

Recommendations

i. The plant has to obtain valid consent to operate from DPCC.
ii. The plant has to ensure that it is operational at full capacity when the joint inspection of the unit is carried out so that the monitoring results are conclusive.
iii. The plant has to take necessary measures to ensure that the concentration levels of all monitored parameters in stack emission are within the stipulated limits.
iv. Theplant has to ensure that CAAQMS installed in their premises is operational at all times and the display board for the same should be made functional.
v. Unit has to fix radioactive sensors at some other suitable places from where all the trucks loaded with MSW should pass.
vi. WtE plant Ghazipur should utilize 100% Fly ash for beneficial purposes like bricks manufacturing etc.
vii. The plant should identify the source of cadmium and minimize the same so as bring the Cadmium concentration levels in fly ash within the stipulated limits. (1 mg/l*)The plant should use the technology to bring PM, NOx and Pb values of stack emission to well within limit.

Name & designation of Inspecting officer(s)	**(Ratnesh Kumar), Sc.'B', CPCB Delhi**	**(Ramesh Chandra) EE, DPCC Delhi**
Signature		

Table 4. Analysis results of the stack emission monitoring of the WTE plant, Ghazipur monitored and analysed by CPCB.

S. No	Parameters	Monitored by	Standards as per consent to operate issued by DPCC	Standard as per Solid waste Management rules,2016,	Date of Sampling	Measured Values Stack-1 (Average)
1	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	5-6 March, 2020	48.4, 53.7
2	HCL	CPCB	50 mg/Nm³	50 mg/Nm³		3.5
3	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		16.1, 51.6
4	NOx (NO and NO_2 expressed as NO_2)	CPCB	350 mg/Nm³	400 mg/Nm³		105.9, 872.6
5	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		-
6	Hydrogen Fluoride	CPCB	0.5 mg/Nm³	4 mg/Nm³		BDL
7	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5 mg/Nm³	0.5 mg/Nm³		0.347
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm³	0.05 mg/Nm³		.007
9	Pb	CPCB	0.1 mg/Nm³	Not prescribed		0.112
10	Hg	CPCB	0.02mg/Nm³	0.05mg/Nm³		BDL

Table 5: 24 hourly ambient air quality monitoring conducted by CPCB.

Parameters	Date of Sampling	Monitored by	Prescribed Standard*	Measured values	
				Ghazipur Police station location-1	Delhi Transco Limited Ghazipur Location-2
$PM_{2.5}$	March5-6, 2020	CPCB	60	33	35
PM_{10}			100	99.33	46
NO_2			80	28.33	37.5
SO_2			80	0.833	8.166

BDL for SO_2 is < 4ug/m^3
**National ambient air quality standards as notified under the air (prevention and control of pollution) Act 1981.*

Table 6: Analysis results of LOI and heavy metals in Bottom ash and Fly ash

Date of sampling	Parameters	Limit	Measured values	
05.03.2020	Loss on Ignition (For bottom Ash only)	<5%*	3.60	
			Bottom ash	Fly Ash
	Arsenic	5 mg/l #	0.02	BDL
	Cadmium	1 mg/l #	0.02	2.75
	Chromium	5 mg/l #	BDL	0.08
	Manganese	10 mg/l #	0.36	1.48
	Lead	5 mg/l #	BDL	0.19
	Selenium	1 mg/l #	BDL	BDL
	Copper	25 mg/l #	0.21	0.03
	Nickel	20 mg/l #	BDL	BDL
	Zinc	250 mg/l #	0.11	0.24
	Cobalt	80mg/l #	BDL	BDL
	Vanadium	24mg/l #	0.24	0.06
	Antimony	15mg/l #	0.02	BDL

Note: BDL for Arsenic <0.022 mg/l BDL for Chromium<0.002 mg/l BDL for Manganese for Lead<0.013 BDL for Nickel BDL, 0.003 mg/l for Cobalt BDL< mg/l for Vanadium BDL<0.16 mg/l
#Concentration Limit of categorise as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under Environment (Protection) Act, 1986. Facility for fly ash and inert material utilization are yet to be installed.

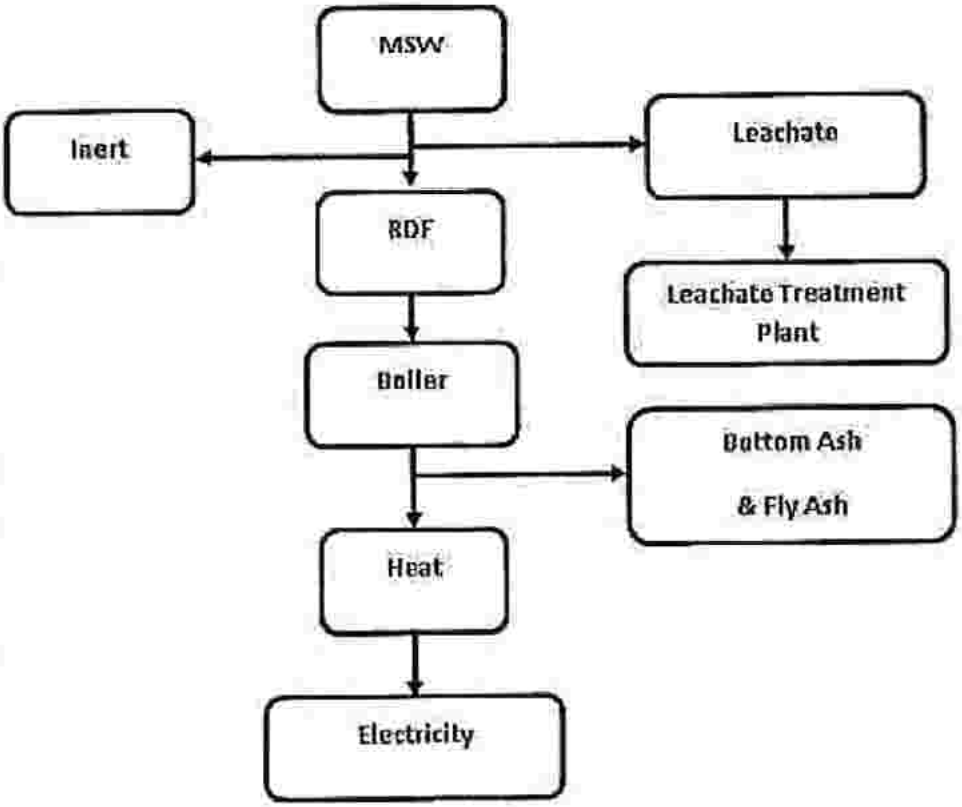
Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI

1	Name and address of the industry	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2.	Name of the occupier/contact person with	Mr. Sandeep Dutt
	Telephone	Mob. 09958360016
	Fax	
	E-mail	Sandip.dutt@jindalcopolls.com
3.	Date of inspection / monitoring	March 12-13, 2020
4.	Installed processing Capacity	As per DPCC Authorization letter the unit has capacity to process 1950 TPD MSW for subsequent generation of 16 MW power. **Vide letter dated 15.01.2020, MoEF&CC has amended Environmental Clearance for increase in Power Generation from 16 MW to 23 MW**
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
12.03.2020	6 AM to 6 PM	17.68	21.20
13.03.2020	6 AM to 6 PM	17.84	21.63

7.	**Process Flow Diagram:**



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant	60mtrs	Scrubber followed by bag filters	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SRIIR, Delhi Results are quoted at **Table – 7**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations	Ambient Air Quality Status are quoted at **Table-8**
11.	Continuous Ambient Air Quality Station	**CAAQMS not yet installed**

12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are quoted at **Table-9**

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act	Valid till 24.09.2024
II	Under Air Act	Valid till 24.09.2024

14. Observations

a) DPCC has renewed Consent-to-Operate of the plant vide consent order dated 21.05.2020 and it is valid upto 24.09.2024.
b) The plant received 1705 MT and 1630 MT, of mixed Municipal Solid Waste (MSW) on 12.03.2020 and 13.03.2020 respectively. The segregation system was working properly. However, complete segregation is not possible until MSW is segregated at source.
c) All the three boilers along with pollution control devices were found operational. The temperature of furnace was maintained between 950-1050°C.
d) The Dioxin & Furans value of stack emission monitoring exceeded the permissible limit.Concentration of remaining parameters are within limits.
e) The PM_{10} and $PM_{2.5}$values of ambient air quality monitoring at two locations were exceeded the permissible limit. Concentration of remaining parameters are within limits.
f) Continuous ambient air quality monitoring station is not yet installed at the unit
g) Online Continuous emission monitoring system (OCEMS) has been installed and found operational during the inspection.
h) Quenched Bottom Ash, Fly Ash and segregated inert are disposed of at Jaitpur site.
i) Radioactive sensors are installed at gate no. 2 of plant.
j) Plant has installed water sprinkling system for dust settlement.
k) Fly ash bricks manufacturing unit is installed but was not operational during the inspection. The plant operator informed that there is negligible market for fly ash bricks because of high manufacturing cost.
l) Analysis report of Fly ash & Bottom ash reveals that all parameters were well within the limit.
m) Plant has maintained considerable greenery inside the premises and along boundary wall.

15. Recommendations

i. The plant has to take necessary measures to ensure that the concentration levels of all monitored parameters in stack emissions are within the stipulated limits
ii. The plant should take necessary measures to reduce fugitive emissions specifically during material handling, so as to reduce PM_{10}& $PM_{2.5}$ value concentrations in ambient air.

iii. Continuous Ambient Air Quality monitoring station should be installed at the earliest. iv. Okhla plants should utilize 100% Fly ash for beneficial purposes like bricks manufacturing etc.		
Name & designation of inspecting officer(s)	(Ratnesh Kumar), Sc.'B', CPCB Delhi	(Ramesh Chandra) EE, DPCC Delhi
Signature		

Table :7 Analysis results of the stack emission monitoring of the WtE plant Okhla,

S. No.	Parameters	Monitor by	Standards as per Consent to Operate Issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values
					12-13 March, 2020	Stack
1.	PM	CPCB	30 mg/Nm^3	50 mg/Nm^3		9.2 | 8.5
2.	Hydrogen Chloride		50 mg/Nm^3	60 mg/Nm^3		3.8
3.	SO_2		100 mg/Nm^3	200 mg/Nm^3		19.9 | 30.4
4.	NO_x (NO and NO_2 expressed as NO_2)		350 mg/Nm^3	400 mg/Nm^3		51.6 | 63.7
5.	CO		100 mg/Nm^3	100 mg/Nm^3		2
6.	HF		0.5 mg/Nm^3	4 mg/Nm^3		BDL
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm^3	0.5 mg/Nm^3		0.028
8.	Cd + Th +their compounds		0.05 mg/Nm^3	0.05 mg/Nm^3		BDL
9.	Pb		0.1 mg/Nm^3	Not prescribed		0.005
10.	Hg		0.02 mg/Nm^3	0.05 mg/Nm^3		BDL
11.	Dixon & Furan	M/s SIIR, Delhi	0.1ngTEq/Nm^3	0.1ngTEq/Nm^3	13.03.2020	0.3037
12.	Total Organic Compounds (as C) at 11% O_2		20mg/Nm^3	20mg/Nm^3		5.7

Table-8.: 24 hourly average values of ambient air quality monitoring

Date of sampling	Monitored by	Parameters	Prescribed Standard* (in µg/m³)	Measured values	
				Sukhdev Vihar Location-I	STP Okhla Location-II
12-13 March, 2020	CPCB	PM_{10}	100	136	164.66
		$PM_{2.5}$	60	69	80
		NO_2	80	35.33	37.833
		SO_2	80	1.33	0.833

Table 9: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values	
12.03.2020	Loss on Ignition (for Bottom ash only)	<5%*	2.36%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	0.01
	Cadmium	1 mg/l#	0.17	0.10
	Chromium	5 mg/l#	BDL	0.35
	Manganese	10 mg/l#	1.94	0.11
	Lead	5 mg/l#	BDL	BDL
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.21	1.34
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	BDL	2.16
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	0.03	0.26

*Standards prescribed by DPCC in the Consent to Operate.
#Concentration Limit to categorise as hazardous waste as per the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

Annexure-I

**BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI**

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 Tnc**

**Sukhdev Vihar Residents Welfare Association & Ors.
Vs.
State of NCT of Delhi & Ors.**

CORAM : HON'BLE MR. JUSTICE SWATANTER KUMAR, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE RAGHUVENDRA S. RATHORE, JUDICIAL MEMBER
HON'BLE MR. BIKRAM SINGH SAJWAN, EXPERT MEMBER

Present: **Applicant:** Ms. Alpana Podder, Adv. with Mr. Bhupender Kumar, LA, Central Pollution Control Board , Applicant in M.A.

Respondent. : Mr. Tarunvir Singh and Ms. Guneet Khehar, Advs.
Ms. Sakshi Popli, Adv. for Delhi Jal Board
Mr. Krishna Kumar Singh, Adv. for Ministry of Environment, Forest and Climate Change
Ms. Priyanka Swami, Adv. for Nagar Nigam Ghaziabad
Mr. Biraja Mahapatra, Adv. and Mr. Dinesh Jindal, LO for Delhi Pollution Control Committee

	Date and Remarks	Orders of the Tribunal
	Item No. 12 October 09, 2017	**M.A. No. 1168 of 2017** It is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Ferrons. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of ambient air quality once in four months, they shall also conduct at lease two surprise inspections and analysis be made in a year. With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost. .....,CP (Swatanter Kumar)

19

	Item No. 12 October 09, 2017 mas	.....,JM (Dr. Jawad Rahim) .....,JM (Raghuvendra S. Rathore) .....,EM (Bikram Singh Sajwan)

Annexure-II

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 640/2018
(Earlier O.A. No. 22/2013)

Sukhdev Vihar Resident's Welfare Association
Vs.
State of Delhi & Ors.

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL,CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: Respondent: **Mr. Nilava Bandyopadhyay, Adv. for Project Proponent, Okhla Project**

	Date and Remarks	Orders of the Tribunal
	Item No. 6 **September 27, 2018** **R**	1. In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the Central Pollution Control Board and the Delhi Pollution Control Committee. Findings in the report are that the Waste-to-Energy Plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of the particulate matter. Following recommendations have been made: **"Recommendations:** *1. To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.* *2. Plant should adopt technologies to reduce Moisture Content in RDF.* *3. Fly ash utilization should be done rather than dumping it on landfill site.* *4. Unit shall install Fly ash bricks manufacturing unit.* *5. Flow meters shall be installed at inlet and outlet of Leachete treatment plant.* *6. Plant should adopt technologies to improve calorific value of RDF.* *7. Plant shall be designed for 30-35 years."* 2. The Central Pollution Control Board may send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste-to-Energy Plant for compliance and conduct another inspection within one

	Item No. 6 **September 27, 2018** **R**	month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months. We do not find any ground to accept the prayer for relieving Central Pollution Control Board of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the Central Pollution Control Board to make any other appropriate arrangement for discharging its functions. This cannot be a ground to avoid responsibility under the binding directions of this Tribunal. 3. It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, Central Pollution Control Board may recommend the amount of environmental damage required to be paid by them. The application is disposed of. .....CP (Adarsh Kumar Goel) .....JM (S.P. Wangdi) .....EM (Dr. Nagin Nanda) 27.09.2018

Annexure – III

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

F. No. CM-13011/125/2024-LAW- HO-CPCB-HO

Date: 07.08.2024

To,

The Members Secretary
SPCBs/PCCs (As per list)

Subject: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-**reg.**

Sir,

This has reference to the Hon'ble NGT order dated 15.5.2024 in abovementioned subject. A copy of the order is enclosed as **Annexure-I.**

In this context, it is requested to provide the information related to Waste to Energy (WtE) plants in your State/UT including the monitoring details & compliance to the environmental norms in the enclosed format **(Annexure-II)**. The information may please be provided through email to **SWM.CPCB@GOV.IN** latest by August 10, 2024.

Your Faithfully,

Dy.

(Divya Sinha)
Director & DH (UPC-II)

Copy to:

1. DH, Law Div.
2. PS to MS: For information of MS, please

o/c

Dy.

(Divya Sinha)

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032
दूरभाष/Tel: 43102030, 22305792, वेबसाईट/Website : www.cpbc.nic.in

List of SPCBs/PCCs

SN	State/UT
1	Andhra Pradesh Pollution Control Board D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada – 520 010
2	Arunachal Pradesh State Pollution Control Board Paryavaran Bhawan, Papu Hill, Yupia Road, Naharlagun- 791110
3	Assam Pollution Control Board Bamunimaidan, Guwahati, Assam - 781021
4	Bihar State Pollution Control Board Parivesh Bhawan, Plot No. NS-B/2, Pallputra Industrial Area, Patliputra, Patna (Bihar) - 800 023
5	Chhattisgarh State Environment Conservation Board Paryavas Bhavan, North Block Sector-19, Naya Raipur (C.G.) 492002
6	Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Sallgao Seminary, Sallgao - Bardez, Goa - 403511
7	Gujarat Pollution Control Board Paryavan Bhavan, Sector 10-A, Gandhinagar – 382 043
8	Haryana State Pollution Control Board C-11, Sector-6. Panchkula-134109, Haryana - 134109
9	Himachal Pradesh Pollution Control Board Him Parivesh, Phase-III, New Shimla, Himachal Pradesh 171009
10	Jammu & Kashmir Pollution Control Committee Summer Office: May-October Sheikh-ul-AlaCampus, Behind Govt. Silk Factory, Rajbagh, Srinagar (J&K) 190008 Winter office: November-April Parivesh Bhawan, Gladni, Transport Nagar, Narwal - 180006
11	Jharkhand State Pollution Control Board T.A Building, HEC, P.O. Dhurwa, Ranchi – 834004
12	Karnataka State Pollution Control Board Parisara Bhavan, 4th & 5th Floor, # 49, Church St., Bangalore - 560 001
13	Kerala State Pollution Control Board Plamoodu Jn., Pattom Palace P.O. Thiruvananthapuram-695 004
14	Madhya Pradesh Pollution Control Board Parayavaran Parisar, E-5, Arera Colony Bhopal – 462 016, Madhya Pradesh

15	Maharashtra Pollution Control Board Kalpataru Point, 2nd – 4th Floor, Opp. Cine Planet Cinema, Nr. Sion Circle, Sion (E), Mumbai – 400 022
16	Manipur Pollution Control Board Lamphelpat, Near Imphal West D.C. Office, Imphal - 795004
17	Meghalaya State Pollution Control Board ARDEN, Lumbyngngad Shillong – 793 014, Meghalaya
18	Mizoram Pollution Control Board New Secretariat Complex, Khatla Thlanmual Peng, Khatla, Aizawl - 796001, Mizoram
19	Nagaland Pollution Control Board Signal Point, Dimapur - 797112, Nagaland
20	Odisha State Pollution Control Board A-118, Nilakanta Nagar, Unit–VIII, Bhubaneshwar – 751012
21	Punjab Pollution Control Board Vatavaran Bhawan, Nabha Road, Patiala – 147 001, Punjab
22	Rajasthan State Pollution Control Board A-4, Jalane Dungri Institutional Area, Jaipur – 302 004, Rajasthan
23	Sikkim State Pollution Control Board Department of Forest, Environment & Wildlife Management Government of Sikkim, Deorali, Gangtok -737102
24	Tamil Nadu Pollution Control Board 76, Mount Salai, Guindy, Chennai-600032
25	Tripura State Pollution Control Board Vigyan Bhawan Pandit Nehru Complex, Gorkhabasti, PO: Kunjaban, Agartala- 799006
26	Telangana State Pollution Control Board Paryavaran Bhawan, A-3, I.E. Sanath Nagar, Hyderabad-500 018
27	Uttar Pradesh Pollution Control Board Building.No. TC-12V Vibhuti Khand, Gomti Nagar, Lucknow-226 010
28	Uttarakhand Pollution Control Board Gaura Devi Paryavaran Bhawan, 46 B IT Park, Sehstradhara Road, Dehradun -248001
29	West Bengal Pollution Control Board Paribesh Bhavan, 10A, Block-L.A.,

	Sector III, Bidhan Nagar, Kolkata - 700 106
30	Andaman & Nicobar Pollution Control Committee Department of Science & Technology, Dolly Gunj Van Sadan, Haddo P.O., Port Blair – 744102
31	Chandigarh Pollution Control Committee Paryavaran Bhawan, Ground Floor, Sector19 B, Madhya Marg, Chandigarh - 160019
32	Daman & Diu and Dadra & Nagar Haveli Pollution Control Committee Office of the Deputy Conservator of Forests, Moti Daman, Daman – 396220
33	Delhi Pollution Control Committee 4th floor, ISBT Building, Kashmiri Gate, Delhi – 110006
34	Lakshadweep Pollution Control Committee Department of Science, Technology & Environment, Kavarati-682555
35	Puducherry Pollution Control Committee Housing Board Complex, III Floor, Anna Nagar, Puducherry – 600 005
36	Ladakh Pollution Control Committee Skara Yokma, Near KBR Airport, UT of Ladakh, Leh-194101

Annexure-I

Item No.06 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.536/2024

News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024

Date of hearing: 15.05.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024.

2. The matter relates to the utility of the waste to energy plants (WtE) and questions their suitability with respect to India's waste problem. As per the article, Waste-to-energy (WLE) technologies allow for the recovery of energy by burning or incinerating waste that cannot be recycled or composted. Their benefits are considered twofold. One, they offer an alternative waste disposal mechanism, diverting solid waste from landfills. Two, through the generation of electricity or heat by burning waste, they provide a renewable energy source that limits reliance on fossil fuels, thereby reducing greenhouse gas emissions. However, the article alleges that though WtE plants have seen relative success in the European Union, environmentalists and scientists have warned that their

a. The quality of waste in India: As per the article, the potential of a WtE operation to meet its energy production target depends on the quality of its waste feedstock. Waste with low moisture content and high calorific value would be ideal for incineration. This includes materials such as non- recyclable plastics (multilayered packaging, plastic bags, styrofoam), contaminated non-usable household textile waste, and non-recyclable domestic hazardous waste, such as soiled paper, soiled cloth, pieces of leather, rubber, tyre, and non-usable wood.

However. Domestic waste in India typically contains high moisture content and has low calorific value, making it unsuitable for efficient combustion in WtE plants, The news item alleges that the WtE plants in India often receive mixed waste, which includes organic, recyclable material. It alleges that mixed waste has high moisture content and needs supplementary energy to incinerate or it won't burn well. This energy is typically fossil-fuel-based, which undermines the claim that electricity produced by WtE plants is altogether clean.

b. Health and Environmental implications: As per the article, incineration of mixed waste produces toxic particles, including carbon monoxide, nitrogen oxides, and sulphur dioxide due to inefficient burning. These particles can cause respiratory ailments and also lead to chronic lung diseases, such as asthma among people who live near WtE sites.

4. The news item raise the question that if India doesn't have suitable waste for WtE plants and these plants are harmful to both human and environmental health, why are more of these facilities being built?

5. It states that In India, an estimated 55 million tonnes of municipal solid waste is generated annually by 377 million citizens residing in urban areas. With an urban population that's expected to grow to 600 million by 2030 and to 814 million by 2050, India is set to generate 165 million tonnes of waste by 2030 and 436 million tonnes by 2050. The waste composition and its characteristics are also subject to change drastically, with a rise in dry waste quantities, a trend observed in major cities. Therefore, there is an urgent need to adopt sustainable waste management practices, with incineration and land filling relegated to the back of the queue.

6. The above matter indicates violation of Solid Waste Management Rules, 2016 and the Environment Protection Act, 1986.

7. The news item raises substantial issue relating to compliance of the environmental norms and implementation of the provisions of scheduled enactment.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897.*

(ii). Ministry of Forest Environment and Climate Change, through its Secretary, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi- 110003.

(iii). National Environmental Engineering Research Institute, through its Director, Nehru Marg, Nagpur – 4400020.

(iv). Indian Institute of Technology, New Delhi, through its Director, Hauz Khas, New Delhi – 110016.

(v). Indian Institute of Technology, Mumbai, through its director, IIT Bombay, Powai, Mumbai – 400076.

10. Let notice be issued to the above respondents for filing their response at least one week before the next date of hearing.

11. List on 01.08.2024

Prakash Shrivastava, CP

Dr. Afroz Ahmad, EM

May 15, 2024
OA No.536/2024
HB

Annexure: II

Information related to WtE plants									
Name of SPCB/PCC:									
S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1									
2									
3									
4									
5									

Annexure-IV

Summary of information provided by 5 SPCBs having operational WtE plants based on RDF (MSW based)

State	No. of operational based on RDF (MSW based) WtE plant	Whether monitored in last 5 Years	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Non complying parameters	Details of Action taken
Gujarat	1	No	NA	NA	NA
Haryana	1	Yes, monitored on 15.03.2024	Stack Emission PM, HCl, SO2, CO, TOC, HF NOx, Cd+ Th + Their compound Hg, Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their Compounds, Total dioxins and furans Treated Leachate TSS, TDS, pH value Ammonical nitrogen Nitrogen, TKN, BOD, COD, Aresenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyanide, Chloride, Fluoride, Phenolic Compound	NA	NA
Madhaya Pradesh	2	i. Not monitored ii. Monitored on 16.05.2024	i. NA ii. PM, CO, Nox, SO2	i. NA ii. Complying	i. NA ii. NA

State	No. of operational based on RDF (MSW based) WtE plant	Whether monitored in last 5 Years	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Non complying parameters	Details of Action taken
Maharashtra	2	i. Monitoring through CEMS Stack Monitoring is carried out on 16.05.2024 and 28.06.2024. ii. Monitored on, 28/09/2021, 19/10/2021, 14/11/2021, 26/12/2022, 06/02/2023, 11/03/2023, 04/05/2023, 28/11/2023, 22/02/2024, 08/04/2024, 03/05/2024, 25/06/2024, 09/07/2024	i. HCL, PM, CO, NOX, SO2 ii. SO2, Nox, TPM	ii. NA iii. TPM	i. NA ii.Warnig Notice, Interim Direction, Forefetting Bank Guarantee
Telengana	1	Not provided	NA	Nil	NA
Andhra Pradesh	2	i. 20.09.2024 ii. 8.01.2024	i. PM, NOx, SOx ii.PM, NOx, SOx	i.Nil ii.Nil	i.NA ii. NA

Note: (*NA: Not applicable*)

Annexure - V

Central Pollution Control Board

UPC-II

Date: 15-04-2019

OFFICE MEMORANDUM

SUBJECT: - " *Clarification on Buffer Zone* Guidelines " issued by CPCB.

CPCB issued guidelines on Buffer Zone around waste processing and disposal facilities in April, 2017.

Subsequently, Central Monitoring Committee constituted under Solid Waste Management Rules, 2016 suggested MOEF & CC to revisit the buffer zone in respect of distance. The Central Pollution Control Board in its 182nd meeting agreed for revisiting of Guidelines.

It is decided that following changes have been made as mentioned at page no.13 of aforesaid Guidelines;

1. **Land of 200-500 m from the boundary of the processing unit is excluded for setting up the facilities but it is mandatory outside the project site as "No development area" for 30 years.**
2. **"No development area" can be utilized for agriculture purpose.**

(A. Sudhakar)
Member Secretary

To,
(As per list attached)
All SPCBs/PCCs

AMENDED GUIDELINES ON THE PROVISION OF BUFFER ZONE AROUND WASTE PROCESSING AND DISPOSAL FACILITIES

Central Pollution Control Board
March, 2019

Contents

1. Introduction

Indian cities are expanding with the increase in population, economic activities and the resulting urbanization. Whereas population residing in urban areas was 11.4% of total population in 1901, it increased to 28.53% in the 2001 census and crossed 30% as per 2011 census, standing at 31.16%. There are 53 urban agglomerations in India with a population of 1 million or more as of 2011 against 35 in 2001. About 43 percent of the urban population of India lives in these cities. The unprecedented growth of these cities has posed several challenges for municipal authorities. Identification of suitable sites for waste management infrastructure in cities is one of the toughest challenges municipal authorities are facing at present. Lack of proper/ updated land use plan with urban authorities is a stumbling block in implementing solid waste management projects.

Most of the existing solid waste management facilities are practicing crude dumping of solid waste. In some cases where solid waste is processed, the situation is still alarming due to use of conventional treatment technologies coupled with poor operation and maintenance by the fund starved ULB. This situataion is giving rise to numerous environmental and public health concerns in and around urban areas. "Not in My Back Yard (NIMBY) syndrome" and litigations are common as public at large do not trust ULBs in providing credible waste management services. Majority of existing solid waste treatment plants and dumping sites, though initially away from habitation but now have no adequate buffer zone from these habitations. Buffer even where available have come under illegal encroachment in many cities and settling societies demand shifting the waste treatment facility itself. Thus there is a general public resistance to the location of waste management facility in any area. Lack of identified sites for municipal solid waste management in master plan compounds the problem.

Disposal of waste in landfills/ dumpsites without any treatment is still practiced even as it impacts on the surrounding environment. Waste management sites encompass waste processing/disposal facilities, which become sources of pollution in terms of air, water, land and noise besides emitting foul smell. Therefore, provision of buffer zone around these facilities is essentially required to protect people living in the surroundings from

exposure/impacts of such pollutants but also to ensure continued safe operations in the waste management facility by maintaining its "island character". Buffer zone also acts as barrier, absorber and to some extent as remedial measure against the fugitive emissions. Fugitive emissions of pollutants emitted during handling of waste, storage, transportation and movements of traffics.

Currently, no scientific basis is available for making provisions for buffer zone around waste processing/disposal facilities. The provisions recommended in the "Municipal Solid Waste Management Manual, 2016" were broadly drawn from the "Report of the Committee constituted by the Hon. Supreme Court of India in March 1999" on Solid Waste Management in Class 1 Cities in India.

In this context, the Government of India through CPCB has framed these guidelines on maintaining Buffer zone including green belt around waste management facilities. These guidelines will not only facilitate the ULBs in meeting the regulatory requirements, reduce the aforesaid nuisance value of the waste management facilities but also make an effort to enhance their aesthetic appeal. In addition to above, the siting criteria for setting up these facilities for waste processing/ landfill is adopted as mentioned in SWM Rules, 2016 at tailing part of these guidelines.

In some instances, the actual separation distance may vary from those recommended in these Guideline, due to site-specific constraints. In such cases, variations to the recommended separation distances may be acceptable, subject to detailed assessment by concerned authorities and to the satisfaction of the State Pollution Control Board/Committee.

2. Objective of the Guidelines

The purpose of this Guideline is to specify adequate separation distances between solid waste management facility and its surrounding area having different land usage characteristics.

To achieve the purpose, these Guidelines aim to:

- minimize the risk of adverse impacts on the environment (land, air, water, noise pollution) and the impacts on the Public Health
- inform and support strategic land use planning decisions and prevent encroachment of controlled areas
- Generate/ develop public acceptance for solid waste treatment and disposal infrastructure
- Encourage new technological innovations for processing facilities with minimal land requirement

3. Regulatory Framework

The buffer zone was first envisaged in 1982 after Indian task force developed the 'Core-Buffer-Multiple Use Zone' strategy. This strategy aimed at separating incompatible land uses, particularly in relation to wildlife. In this approach, the buffer zone would be under the wildlife park authorities' administration and controlled use of forest produce would be allowed. The multiple-use zone was located outside the park boundaries designated for rural development. With similar analogy, these buffer zone guidelines are framed for waste processing and disposal facilities. The existing regulatory provisions for these guidelines are given as under:

I. Provisions related to Buffer Zone specified in the **Solid Waste Management Rules, 2016** mentioned as under;

- **Rule 11** Section (l)- **Duties of the Secretary-in-charge, Urban Development in the States and Union territories**- Notify buffer zone for the solid waste processing and disposal facilities of more than five tonnes per day in consultation with the State Pollution Control Board
- **Rule 12** Section (h)- **Duties of Central Pollution Control Board**- Publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tonnes per day of solid waste;

- The **distance/siting criteria's for setting up waste management facilities** as specified in Solid Waste Management Rules, 2016 at **Schedule I (A)(vii)**
- **Schedule I (A) (viii)**-The sites for landfill and processing and disposal of solid waste shall be incorporated in the Town Planning Department's land-use plans.
- **Schedule I (A) (ix)**-A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. **The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board.**
- **Schedule I (F)**-Criteria for ambient air quality monitoring

ii. The **Coastal Zone Regulation** notified by Ministry of Environment Forest And Climate Change also prohibits setting up and expansion of units or mechanism for disposal of wastes in High Tide Line (hereinafter referred to as the HTL) to 500 mts on the landward side along the sea front. Also dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for the purpose of land filling and the like with high tide line shall be regulated by the concerned authority, where shall implement schemes for phasing out any existing practice, if any.

iii. The buffer zone guidelines for setting up processing and disposal facility also come under the purview of The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981.

iv. For setting up solid waste processing and disposal facilities, The Environment (Protection) Act, 1986 also need to be adhered to particularly from the angle of Environmental Clearances. Authorities concerned need to deliberate on the number of issues and criteria when siting a buffer zone as broadly categorized below:

a) Environmental considerations

- Distance from the flood plains, coastal regulation, wetland, Critical habitat areas, sensitive eco-fragile areas, highways, habitations, public parks and water sources

- Topography- Hilly areas, land availability and also the slope's landslidepotential.
- Wind Speed and Direction- Wind direction is one of the important consideration as to the area that can be affected due to dust and odour.

b) Proximity and access considerations

- Transportation Network
- Utilities and Services

c) Land-use considerations

- Land Usage and Activities on Adjacent Sites
- Allowable Land Uses and Zoning
- Proximity to Airports
- Proximity to Other Waste Management Facilities

4. Existing Norms for Buffer Zone in India and Abroad

A.) Buffer Zone

The buffer zone, particularly in context of NIMBY syndrome in India, is one of the limiting conditions for obtaining Environmental Clearance for setting up solid waste processing and disposal facilities. At present, there are no published norms for buffer zone for solid waste management facilities by MoEFCC/ CPCB.

However, the "Manual on Municipal Solid Waste Management, 2016" published by CPHEEO, Ministry of Urban Development recommends certain provisions for buffer zone particularly the one of maintaining 500 m buffer zone around the waste processing facilities. In the given pace of urbanization in the country, getting such large piece of land is becoming increasingly difficult and costly. ULBs in setting up waste processing and disposal facilities expeditiously.

The provisions made for Buffer zone for solid waste processing and disposal facilities in various countries are tabulated below:

i. **Landfill**

International Solid Waste Association	500 m should be provided depending on the size of landfill, height, wind direction
South Australia	500m buffer distance shall be maintained between areas dedicated for waste disposal and the nearest surface water
Ontario, Canada	Buffer area shall be at least 100 m wide at every point, if that does not apply to a buffer area, if the buffer area is at least 30 metres wide at every point and a written report confirms that; (a) the buffer area provides adequate space for vehicle entry, exit, turning, access to all areas of the site and parking; (b) the buffer area provides adequate space on the surface of the site for all anticipated structures, equipment and activities; and (c) the buffer area is sufficient to ensure that potential effects of the landfilling operation do not have any unacceptable impact outside the site.
Malaysia	500m
South Africa	Buffer zone min 200m to 500m
Bangladesh	250m from the habitat
Hong Kong	250 m away from the edge of the waste (landfill boundary)

ii. **Waste processing facilities**

Canada	minimum buffer strip between composting facility boundary and adjacent property. For in-vessel Composting distance between active area and the nearest residential or institutional building shall be min 500m, nearest commercial or industrial building 250 m and nearest property boundary will be **min 100m.**

CANADA-Nova Scotia	In case of in-vessel composting facilities, where it can be demonstrated that particular equipment will not release odours generated from the composting process into the surrounding environment, the distance between the equipment and the nearest property boundary shall be a minimum of 30 metres
Malaysia	production of compost from organic waste- 500m
Devon city Council (UK)	buffer distance 500m
China	300m buffer zone between incineration plants and local residents

From above, it i s observed that the minimum buffer area varies from 100 m to 500 m in case of both waste processing and disposal facilities.

B.) Facility Siting Criteria

In addition to the suitable provisions of the buffer zone, the SWM Rules, 2016 provides norms for siting criteria for landfills. The same is reproduced below for adoption while setting up landfill facilities.

Table 1. Criteria specified for Identifying Suitable Land for Sanitary Landfill Sites (Not a treatment facility)

S. No.	Place	Minimum Siting Distance
1.	Rivers	100 m away
2.	Ponds, Lakes, water bodies	200 m
3.	Highway, Habitations, Public Parks and water supply wells	200 m from center line
4.	Flood Plains as recorded for the last 100 years, zone of coastal regulation, wetland, Critical habitat areas, and sensitive eco-fragile	Sanitary landfill site not permitted

	areas	
5.	Airport/ Airbase	20 km**

In a special case, landfill site may be set up within a distance of 10 and 20 km away from the Airport/Airbase after obtaining no objection certificate from the civil aviation authority/ Air force as the case may be.

However, there is no such siting criteria applicable for setting up waste processing facilities.

5. Recommended Provisions for Buffer Zone

The Solid Waste Management Rules, 2016 specified the terminology of Buffer Zone, *as "no development zone to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total land area allotted for the solid waste processing and disposal facility."*

Buffer Zone around the core waste processing area consists of utility area, open parks and green belts etc. Further, depending on feasibility of planning, the interface land use between the boundary of waste processing facility and sensetive receptors, can also be developed as an additional measure.The layout of buffer zone (utility area, open parks and green belts) including core waste processing area and optional interface land use is shown in the figure below:

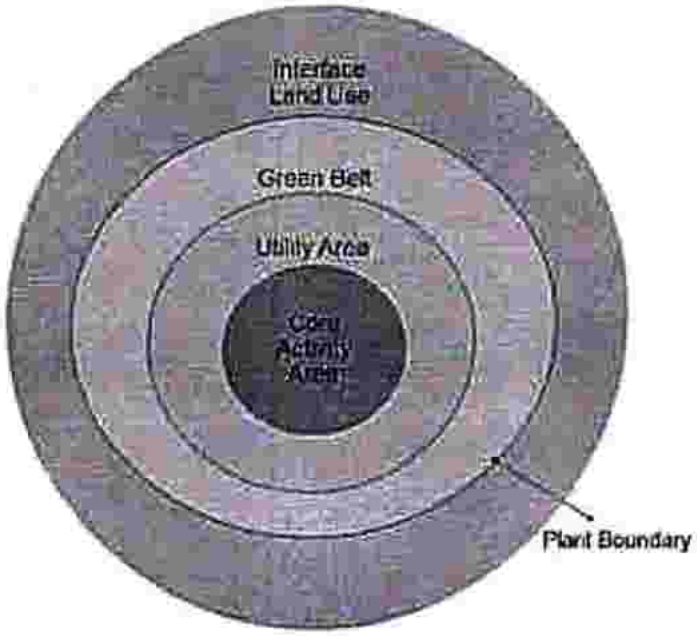


Figure 1 Depicts activity boundary, green belt and separation distance

For the purpose of these guidelines, the Buffer Zone, Separation Distance, Utility Area, Green belt and Interface Land use shall have the meanings set out below, unless otherwise provided, hereafter, for the exclusive interpretation of these Guidelines.

a) The **Buffer Zone** is generally defined as an area of restricted activities, depending on the activity in adjacent land uses. It also ensures long-term continuous availability of disposal sites by avoiding potential conflicts between waste disposal sites and adjacent lands with different users.

b) **Buffer Distance or Separation distance** is measured as the areal distance between the source of emission and sensitive receptors. For the purpose of these guidelines and addressing the required protection from adverse impacts, separation distance is measured from the tip of core SWM facility processing boundary, as the source of emission, to the nearest boundary of the property of sensitive receptors as shown in figure 1.

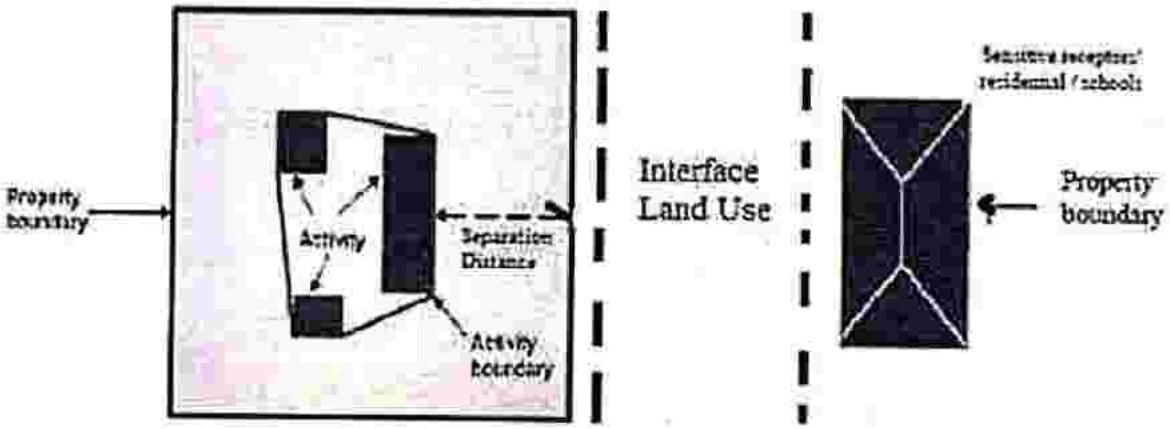


Figure 2. Core Plant activity area, buffer Zone and Interface land use

c) **Core Waste Processing/Landfilling Area** typically requires space for receiving waste, storing waste, segregation of waste and treatment units within the facility. Similarly, for Landfilling it is the area of cell which is receiving the waste/inert.

d) **Utility Area** within the facility is designated area for the facility operations other that the core activities like. Weigh bridge, parking, vehicle cleaning, laboratory, emergency services etc.

e) **Green Belt** for the purpose of these guidelines shall refer to an area that is kept in reserve within the alloted land for setting up facility, around the core SWM processing area, for the purpose of plantation and landscaping to reduce the adverse effects from pollutants like air & noise, soil erosion control etc. It also works as a natural shield to protect people around the facility from these pollutants.

f) **Interface Land Use:** The buffer zone could be further augmented with interface land use area, where above beneficial and feasible as an additional optional measure, after due approval of the concerned authorities. The interface land use shall not generate significant emissions, nor warrants protection from them. The activities in the interface land use are vehicle

showrooms, service stations, warehouses, display homes, emergency services facilities, funeral, veterinary clinic and parks etc.

i. **Separation Distances for Solid Waste Processing and Disposal Facilities**

Ideally, a distance of 500 meter from the boundary of the Solid Waste Processing and Disposal Facility (sanitary landfill) should be maintained. However, on case to case basis a distance of minimum 200 meter from the Solid Waste Processing and Disposal Facility (sanitary landfill) can be considered subject to the condition that such facility meets the stipulated standards prescribed by State Pollution Control Board with respect to ambient air as well as for stack emissions.

The above provisions have been made keeping in view of high population density in urban areas, scarcity of land to set up such facilities and protest from local inhabitants in the area of processing/ disposal facility and is in line with those being adopted at international level. Besides, the following three conditions need to be ensured:

(a) the buffer area provides adequate space for vehicle entry, exit, turning, access to all areas of the site and parking;
(b) the buffer area provides adequate space on the surface of the site for all anticipated structures, equipment and activities; and
(c) the buffer area coupled with technological interventions is sufficient to ensure that potential effects of the processing/ landfilling operation do not have any unacceptable impact outside the site.

Note:

1. ***Land of 200-500 m from the boundary of the processing unit is excluded for setting up the facilities but it is mandatory outside the project site as " No development area" for 30 years.***
2. ***No Development area can be utilized for agriculture purpose.***

6. Green Belt

The buffer zone effectiveness is reinforced by the green belt within the solid waste processing and disposal boundaries. An important aspect of a green belt sometimes overlooked is that the plants constituting green belts are living organisms with limits to their tolerance towards air pollutants. For the purpose of these guidelines, the green belt shall refer to an area that is kept in reserve within and around the SWM facility for the plantation and landscaping to reduce the adverse effects from the activity area like air & noise pollution, soil erosion etc. The green belt is an effective pollution sink only within the tolerance limits of constituent plants. The philosophy is that when primary pollutants are taken care of, formation of secondary pollutants will not reach menacing proportions. Primary pollutants of concern are – SO_2, HF, NO_2, CO, CO_2, NH_3, H_2S, Cl, SPM and organics. **Annexure- 1** attached to these guidelines shows the selection criteria for plants near the processing facility.

These guidelines recommend minimum 10 metres green belt within and all around the facility along the boundary. Vegetation, shrubs, trees, and berms with high density greenery can be incorporated into green belt within facility limits to serve as visual barriers and to reduce noise levels. Depending on the monitoring of level of pollutants in ambient air after the boundary of facility, on case to case basis, suitable technological measures/ barriers to check pollutants need to be resorted. The important factors for developing green belt for agro-climatic conditions are stated below:

a) Criteria for Selection for Plant Species

- The plant species should be fast growing
- They should have thick canopy cover
- They should be perennial and evergreen
- They should have high carbon – CO_2 sink potential
- They should be effective in absorbing pollutants without significantly affecting their growth

b) Recommended plant species:

Keeping in view the nature of pollutants expected from the disposal site, a green belt of minimum 10 metre width is recommended and the following plant species can be selected for plantation:

- Acacia nilotica (Babul)
- Deldergia Sissoo (Shishum)
- Acacia auriculiformis (Australian Babul).
- Azadirachta Indica (Neem)
- Lagerstroemia speciosa (Jamun)
- Prongamia pinnata (Karanji)

c) Recommended plant species Density around Processing & Disposal/ Landfill site:

These guidelines recommend the green belt width of minimum 10 meters within and all around processing and disposal facilities. The recommended minimum density of the green belt should be as discussed in the green belt model provided in the CPCB guidelines for developing green belts in 2000. These guidelines introduce the concept of a pollution attenuation coefficient for estimating the removal of pollutant while passing through the green belt. The formulation of pollution attenuation coefficient makes use of parameters such as leaf area, density of the tree plantation, deposition velocity of the pollutant on leaf surface and wind speed to the green belt. The model gives the dependence of the pollution attenuation factor of a green belt on various physical parameters of the green belt such as its height, width, distance from the pollution source and on atmospheric stability conditions and hence the model can be used to optimize the design of the green belt in obtaining the desired degree of attenuation of the pollution around an industry. The case to case basis CPCB guidelines for developing green belts (March, 2000) to be referred for optimal density applications.

7. Operationalization Framework

Solid Waste Management Rules, 2016 has empowered Central Pollution Control Board for maintaining buffer zones restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tonnes per day of solid waste. The guidelines will be updated, from time to time, and address environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of SWM Rules, 2016.

i. Role of State Pollution Control Board

a) The SPCB shall link the buffer zone achievement with grant of Consent to operate and establish under stipulated norms;
b) The SPCB shall conduct periodic environmental monitoring around buffer zone and assess the impact on the sensitive receptors;
c) The SPCB shall bi-annually review the Green Belt condition within the facility premises and give suggestions to the ULBs for further improvements. Stringent measures and penalties as per the stipulated norms to be imposed in case of default;
d) The SPCB shall extend all necessary support to local authority for the site selection for the newly proposed waste processing and disposal facility;

ii. Role of Local Body/ Facility Operator

a) The ULB shall be responsible for the selection of site in close coordination with SPCB;
b) The ULB/ operator shall be responsible for green belt development and maintenance in the buffer zone;
c) The ULB shall direct the operator concerned, in case it outsources facility to comply with these guidelines

iii. Role of Town and Country Planning Department

a) Town and Country Planning Department shall allocate adequate land for waste

management facilities in the Master Land Use Plan;

b) Town and Country Planning Department shall make all efforts to restrict/ prohibit peri-urban growth near such facility;

c) Town and Country Planning Department shall be responsible for making provisions of Green Area development around such existing/ exhausted facilities to the extent feasible to minimize the impact of pollution to sensetive receptors.

8. Annexure-1- Selection criteria for plants near the processing facility

Table 2.6 Compilation of research in India indicating sensitive and tolerant species, with reference to industrial pollutants

Name of Plant	Sensitive	Tolerant	Reference
Mangifera indica	Chlorosis		
Cassia fistula			
Eucalyptus globulus (Gum plant)	Foliar injury	Acid rain	Rao, 1978
Psidium guajava	Chlorosis		
Syzygium cumini	Cuticular cracks		
Ficus religiosa	Cuticular cracks		
Ficus benghalensis	Cuticular cracks		
Cassia fistula	Chlorosis		
Delonix regia	Cuticular cracks		
Tectona grandis	Cuticular cracks		
Azadirachta indica	Cuticular cracks		
Mangifera indica			
Psidium guajava	Leaf drop	Low fly ash	
Tectona grandis	Leaf drop at 20% fly ash		
Ficus religiosa			
Eucalyptus globulus			
Psidium guajava			
Azadirachta indica (Neem)	Chlorosis	Fly ash	
Cassia fistula	Cuticular cracks		
Delonix regia (Gulmohar)	Leaf drop		
Syzygium cumini	Leaf drop		
Ficus religiosa	Chlorosis		
Tectona grandis	Chlorosis		
Mangifera indica	Chlorosis		
Psidium guajava	Chlorosis		
Eucalyptus globulus			
Azadirachta indica			
Tabernaemontana coronaria	Foliage		
Ficus religiosa			
Cassia fistula		Reduced chlorophyll	Reduction of pH (1989)
			Yield and Attributes (1989)

(Contd...)

12

Table 2.5 (Contd...)

Name of Plant	Pollutants	Treatment	References
Calotropis gigantea	Particulate matter		Bhatia Murthy and Kumar (1983)
Beta vulgaris var. Rubra	Cement dust		Das and Rathanpal (1978)
Mangifera indica		Dust Collector	Shetye and Chaphekar (1980)
Thespesia populnea			
Erythrina indica	Flour dust	Collector	
Polyalthia longifolia			
Ficus benghalensis			
Ficus infectoria		Dust Collector	Das (1981) and Das et al. (1981)
Ficus religiosa			
Mangifera indica			
Tectona grandis			
Polyalthia longifolia			
Shorea robusta			
Terminalia arjuna			
Cassia fistula	Flour dust		Das (1981) and Das et al. (1981)
Pongamia pinnata	Collector		
Eucalyptus sp.			
Phoenix dactylifera		Bottle dust collector	Rao (1971)
Annona squamosa			
Lagerstroemia flosreginae			
Psidium sp.			
Banana Crop	Particulate matter SO_2 and dust		Dhaulde and Patil (1983)
Lagerstroemia flosreginae	From brick kiln SO_2 and dust		Bisht et al. (1984)
Mangifera indica	From brick kiln SO_2		Bell and Bell (1991) Rao 1972 Shetye 1979 Sinclair (in Lindzey and data) Power and Daisy (1974)
Holoptelea integrifolia	To pollute		Chaphekar et al. (1980 a)
Cleistanthus collinus	areas		
Diospyros melanoxylon			
Careya arborea			
Cleistanthus collinus	Fly ash SO_2		Dubey et al. (1982)

(Contd...)

13

Table 2.0 (Contd...)

Name of Pest	Symptom	Damage	Reference
Mealybug (Maconellicoccus hirsutus)	SO2		Singh (1977a) (1977b, 1982) and Singh and Chakraborty (1979)
Brahmin (Dysdercus cingulatus)	SO2		Pandey and Rao (1978)
Red mite	SO2		Prasad and Rao (1982)
Coccids (Saissetia spp.)	SO2		Singh and Rao (1985)
Psylla (Heteropsylla cubana)	SO2		Mehrotra (1986)
Coccids (Saissetia spp.)	SO2		Chakraborty (1987)
Thrips (Caliothrips indicus)	SO2		Chakraborty (1988)
Thrips	SO2		Chakraborty and Chakraborty (1989)
Coccids (Saissetia spp.)	SO2		Chakraborty and Chakraborty (1990)
Mealybug (Maconellicoccus hirsutus)	SO2		Chakraborty and Chakraborty (1991)
Brahmin (Dysdercus cingulatus)	SO2		Chakraborty and Chakraborty (1992)
Leafhopper (Amrasca biguttula biguttula)	SO2		Chakraborty and Chakraborty (1993)
Cotton Cutworm, Whitefly, Spotted Bollworm, Red Cotton Bug, Cotton Stainer, Jassid, Thrips, Aphid, Mealybug	SO2		Pandey and Vanlya (1978)
Mealybug (Maconellicoccus hirsutus)	NO		Pandey and Vanlya (1978) Chaphekar (1979)
Coccids (Saissetia spp.)	SO2		Chaphekar (1979) Vashney (1979)

(Contd...)

Table 2.6 (Contd...)

Name of Plant	Sensitive	Tolerant	Reference
Bougainvillea glabra Yucca gloriosa Cassia fistula Cestrum diurnum Syzygium cumini Oxt. Pea, Bengal, Potato Cucurbit	SO_2		Varma and Ahmed (1974)
Arachis hypogaea Ficus religiosa Helianthus annuus Gaillardia pulchella Vinca, Bunium, origin of Indus area		SO_2	Varma and Ahmed (1974)
Cestrum nocturnum Solanum tuberosum Cynodon dactylon Ipomoea batatas Solanum melongena Malus pumila Abelmoschus esculentus Vit. Pusa Early	SO_2, O_3, SO_2+O_3 SO_2, O_3, SO_2+O_3 SO_2, O_3, SO_2+O_3 SO_2, O_3, SO_2+O_3 SO_2, O_3, SO_2+O_3	SO_2, O_3, SO_2+O_3 SO_2, O_3, SO_2+O_3	Agarwal and Rao (1983)
Abelmoschus esculentus	SO_2, O_3 SO_2+O_3		Agarwal and Sharma (1983) Sharma (1981)
Phaseolus aconitifolius Trigonella foenum-graecum Brassica juncea Lycopersicon esculentum	SO_2, HF, SO_2+HF		
Trigonella foenum-graecum	NO_2		Prasad and Rao (1979)
Trigonella foenum-graecum Cathartocarpus fistula Madhuca indica	NO_2+SO_2 SO_2		Prasad (1982) Rao et al. (1988)
Ficus religiosa var. Surattensis, Ficus religiosa var. T183 Hordeum vulgare Zea mays	NaF		
Lycopersicon esculentum Abelmoschus esculentus Gossypium herbaceum Solanum tuberosum	H_2F_2 HF		Anju (1981) Pandey (1979)
Zea mays	HF		Rai and Rai (1978 b)
Sesamum sp.	HF		Pandey and Rao (1983 a)

(Contd...)

Table 2.6 (Contd...)

Name of Plant	Sensitive	Tolerant	Reference
Solanum tuberosum	Gaseous Vapour, Aqueous		Prasad (1932)
Hydrocharis morsus-ranae Cyperus iria Oryza sativa Trapa natans			Chaphekar and Bendal (1970)
Nymphaea alba	SO_2		Varshney, (Unpublished)
Spirodela polyrhiza	HF		Wood et al (1951)
Zea mays Phaseolus vulgaris Pisum sativa Trapa natans bicornis Medicago sativa	SO_2		Varshney and Varshney (1981)
	SO_2 fumes		Agarwal (1980)
Cicer arietinum Pisum sativa Vigna radiata	—		
Arachis hypogaea Glycine max			
Mangifera indica		Dust	Agrawal & Ghuram (1988)
Ficus benghalensis L. Ficus infectoria Roxb. Holoptelea integrifolia Planch Ipomoea fistulosa Martius ex choisy Lagerstroemia sp Nerium oleander L Pithecolobium dulce (Roxb.) Benth		Dust	Ahmad Yunus et al (1991)
Tectona grandis L. Lannea coromandelica W & A Trema orientalis Linn Acacia nilotica Willd Bauhinia purpurea Willd Miliusa velutina Willd Albizia lebbeck		Dust	Ahmad Yunus et al (1990)

(Contd...)

14

Table 2.6 (Contd...)

Name of Plant	Existing	Tolerance	Reference
[illegible]		Current (1st)	
[illegible]			
[illegible]			
Azadirachta indica A. Juss	Current (1st)		Parasar, Dhiraj et al. (1994)
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]		by ash	
[illegible]		SO2	Rao S.N. Shyam S. (1992)
[illegible]			
[illegible]			
[illegible]			
[illegible]			
[illegible]	SO2		
[illegible]			
[illegible]			
[illegible]			
[illegible]		SO2	Murthy M.S.R. et al. (1992) Rao S.N. et al. (1991)
[illegible]			
[illegible]	TO		
[illegible]			
[illegible]		Dust	
[illegible]			
[illegible]			
[illegible]	Dust		
[illegible]			
[illegible]			
[illegible]		SO2	Rao S.N. et al. (1991)
[illegible]			
[illegible]	SO2		
[illegible]			

Fig.5.1 TREE CANOPY SHAPES

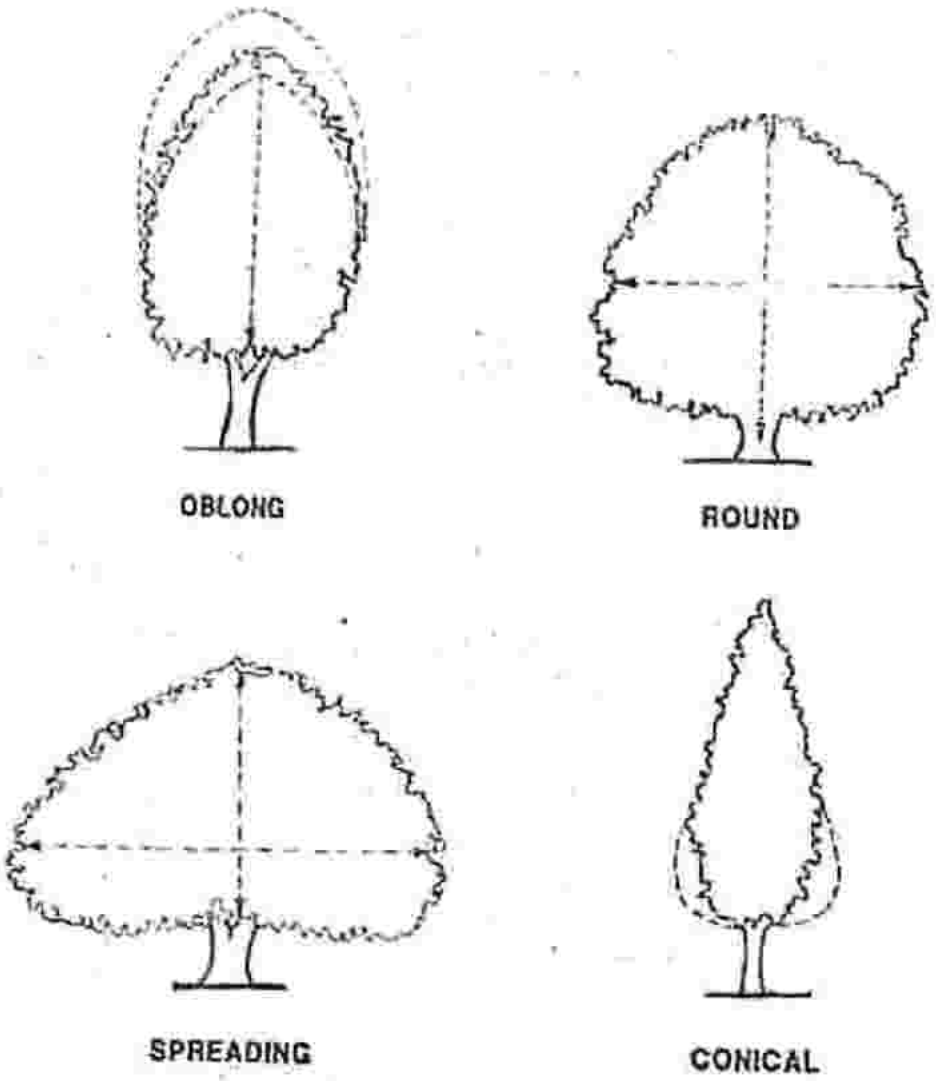


FIG. 5.1 TREE CANOPY SHAPES

FIG. 5.2 TYPICAL ROAD-SIDE PLANTATION

Annexure - VI

FINAL

"Selection Criteria for Waste Processing Technologies"

[In compliance with Hon'ble National Green Tribunal Order Dated 25th May & 1st August, 2016 in the Matter of OA No. 199 of 2014, Almitra H. Patel &Anr. Vs Union of India &Ors.]

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forests and Climate Change)
PARIVESH BHAWAN, EAST ARJUN NAGAR, SHAHDARA

CONTENTS

SELECTION CRITERIA OF WASTE PROCESSING TECHNOLOGIES

1.0 Introduction:

Selection of appropriate technology is one of the key considerations for success of a waste management system for a particular town/city besides taking consideration of other aspects like resource recovery, environmental soundness, financial support, involvement of stakeholders/ public and institutional capability.

Many waste processing technologies are available and in practice world-wide. However, efficiency of a particular technology depends upon the criteria for which it is designed and planned. The major criteria considered for selection of technologies are the waste quantity, waste characteristics, physical properties and composition of wastes, availability of land, social factors, capital investment, duration of treatment, products market, etc.

A wrong selection of waste processing technology can cause failure of the entire waste management system leading to bad economics and environmental cost.

2.0 Selection of Best Available Technology for Waste Processing

The available waste processing technologies can be broadly divided into two categories-

(1) Biological treatment and
(2) Thermal treatment.

The Biological treatment process is accomplished by allowing to micro-organisms to degrade waste components by creating conducive environment for growth of microbial organisms. In the biological process, the biodegradable organic portion

of waste is broken down into gaseous products (CO_2, Methane gas, etc) and water molecules leaving behind carbon rich byproduct called compost. The biological activities depend upon several criteria- C/N ration, pH value, moisture content, supply of oxygen, etc. Biological processes for waste treatment can be further divided into two categories-

(a) Aerobic treatment (in presence of Oxygen) and
(b) Anaerobic treatment (absence of Oxygen).

The thermal process of treatment is applied to destroy the harmful potential of wastes together with energy recovery. In this process, the waste components are incinerated in controlled oxygen supply so that maximum heat energy can be recovered without causing the air pollution. During incineration, the waste undergoes chemical changes to release gaseous byproduct, water vapour along with heat energy. The heat energy can be utilized for generating electricity through boiler. The efficiency of heat recovery depends upon the calorific value of incinerated waste.

Details of the available technologies are discussed below;

2.1 Aerobic Composting

Composting is the process of aerobic decomposition of biodegradable organic matter in a warm, moist environment by the action of bacteria, yeasts, fungi and other organisms. MSW in India has an initial C/N ratio of around 30:1, ideal for decomposition. The organisms involved in stabilization of organic matter utilize about 30 parts of carbon for each part of nitrogen. Compositing requires approx 25 m^2 area per ton of MSW (only for windrow formation for 21 days composting and maturity yard for 30 days stabilization). The additional area required is for machinery, packing and storage. Facilities also required for recycling and treatment of effluent (leachate) and sanitary landfill for rejects (inert materials,

sludge from ETP). The compost products should comply with the standards prescribed in the SWM Rules, 2016.

2.2 Vermi -composting

Vermi compost is the end-product of the breakdown of organic matter by particular species of earthworm. Vermi compost is a nutrient-rich, natural fertilizer and soil conditioner, cultured on a specially made vermi-bed. The earthworm species most often used are Eudrillus eugineae, Eisenia foetida or Lumbricus rubellus. It can treat any organic waste, not appreciably oily, spicy, salty or hard and that do not have excessive acidity and alkalinity. The C/N ratio preferred is 30:1 where, carbon matter comes from brown matter (wood products, saw dust, paper etc) and nitrogen from green matter (food scraps, leaves etc). Overabundance of greens generates ammonia. The moisture content of 40-55% is preferable and maintained by covering the tank with wet sack and sprinkle water as required. Vermi-compositing can be done in tank with size of 4m x 1m x 0.5m for waste input of 10kg/day of semi decomposed waste.

2.3 Biomethanation /Bio-waste Derived Fuel

It is a process based on anaerobic digestion of organic matter in which microorganisms break down biodegradable material in the absence of oxygen. The process is widely used to treat wastewater sludge and organic wastes because it provides volume and mass reduction of the input material. It produces methane and carbon dioxide rich biogas suitable for energy production and hence, is a renewable energy source. The nutrient-rich solids left after digestion can be used as a fertilizer. It generally treats Sorted organic fraction only (highly putrescible) for better gas yield. Fibrous organic matter is undesirable as the anaerobic microorganisms do not easily break down woody molecules such as lignin, cellulose, hemicelluloses, etc.. Preferred C/N ratio is 25-30. Moisture content should be >50% which implies on feed, gas production, system type, system efficiency. Area requirement for bio-methanation is approximately 25 m^2

per tonne of MSW. Extra area required for machinery, gas containing and storage facilities.

2.4 Incineration

The incineration of MSW involves combustion of waste leading to volume reduction (90-95%) and recovery of heat to produce steam that in turn produces power through steam turbines (Bhide and Sunderesan 1983). Basically, it is a furnace for burning waste and converts MSW into ash, gaseous and particulate emissions and heat energy. The efficiency of the technology is linked to the waste characteristics and their properties such as moisture content and calorific values. It requires high temperature of the order of 800-1000°C and sufficient air and mixing of gas stream. The minimum temperature for burning carbonaceous wastes to avoid release of smoke and prevent emissions of dioxin and furans is 850°C. Depending on the nature of wastes and the operating characteristics of combustion reactor, the gaseous products derived from the combustion of MSW may include carbon dioxide (CO_2), water (H_2O, flue gas), oxygen (O_2), nitrogen oxides (NOx), sulphur dioxide (SO_2) and small. Minimum Moisture content should be <45%. Calorific value should be as high as possible; >1500 kcal/kg. Incineration of chlorinated plastic should be avoided as far as possible. The emission standards are prescribed in SWM Rules, 2016.

2.5 Plasma pyrolysis

Plasma pyrolysis or plasma gasification is a waste treatment technology that gasifies matter in an oxygen-starved environment to decompose waste material into its basic molecular structure. The process demands high electrical energy for creating high temperature by an electrical arc gasifier. It does not combust the waste as incinerators do. In a plasma converter, the arc breaks down waste primarily into elemental gas and solid waste (slag). The objective of the process is to generate net electricity, depending upon composition input wastes, and to

reduce the volumes of waste being sent to landfill sites. Relatively high voltage, high current electricity is passed between two electrodes, spaced apart, creating an electrical arc where temperatures as high as 13,871°C is reached. The temperature from one meter arc can reach up to ~4000°C. At these temperatures most types of waste are broken into basic elemental components in a gaseous form, and complex molecules are atomized - separated into individual atoms. Depending on the input waste (plastics tend to be high in hydrogen and carbon), gas from the plasma containment can be removed as Syngas, and may be refined into various fuels at a later stage. There has been issues of plasma systems regarding high temperatures requirement and short life of liners which are highly susceptible to both chlorine attack and to local variability in such high temperatures, not likely to last more than a year in service.

2.6 Pelletization /Production of Refuse Derived Fuel (RDF)

It is basically a processing method for mixed MSW, which can be very effective in preparing an enriched fuel feed for thermal processes like incineration or for use in industrial furnaces. It is a fuel produced by shredding municipal solid waste (MSW) and steam treatment for reducing moisture content. RDF consists largely of organic components of municipal waste such as plastics and biodegradable waste, which are compressed into pellets, bricks, or logs. Non-combustible materials such as glass and metals are removed during the treatment process with an air blow or other mechanical separation processing. The MSW collected for disposal is tested for its moisture content and when the moisture content is more than 35- 40%, it requires drying to produce fuel pellets with reasonable calorific/heating values. The reduction in moisture can be done artificially or by natural sun drying. The sun dried garbage is then uniformly fed into a rotary drying system i.e. Hot Air Generation burning oversize garbage or other fuel to further bring down the moisture level to about 10-12%. RDF is an alternative to WTE and is a potential waste management technology

3.0 Criteria for selection of Waste Processing Technology

For planning and designing of a waste management plan, some preliminary survey is required to be obtained from the city/town and accordingly selection of waste processing technologies can be done for the city/town. In case of waste quantity is found less than requirement, a regional plan may be prepared for clusters of towns to achieve the desired quantity of waste. In case of excessive generation of waste, the waste can be reduced by adopting decentralized treatment process (vermin-composting/Biogas) in pockets – within garden premises, large residential complex, etc. However, Integrated waste processing plants are capable of processing both organic and incinerable wastes.

The primary criteria for selection of waste processing technologies are as under;

1. Quantity of waste generation
2. Characteristics of waste (Physical and chemical property)
3. Based on land availability **(Annexure-I)**
4. Prevailing environmental conditions
5. Climatic condition and terrain
6. Social acceptance
7. Market for the products
8. Capital investment
9. Siting criteria
10. Environmental norms

The quantity of waste generation plays vital role in selection of waste processing technologies. Vermi-composting and Biogas plants are capable of handling effectively up to 30 Tonne/per day and suitable for small towns. Aerobic composting plants are found operational up to 500 Tonnes/day. The waste-to-Energy plants are found cost-effective for processing waste 500 Tonnes/day and above. The indicative land requirements for different composting technologies are given at **Annexure-I**.

Waste characteristics such as C/N ratio, moisture content, calorific value, etc. indicate the treatment technology to be adopted. The desirable C/N ratio for composting is 30:1 with moisture content 50-60%.; otherwise, the these parameters are maintained by addition of some selected wastes. The desirable calorific value of waste considered for incineration should not be less than 1500 Kcal/kg (SWM Rules, 2016). The desired calorific value of waste can be achieved practicing effective segregation of wastes. However, multiple technologies can be selected for a city for processing solid wastes in an integrated way depending upon the quantity and characteristics of wastes as under (Table-1);.

Table-1: Options for Integrated Technologies as per waste quantity generation

Sno.	Population range	Waste Gen.TPD	Composition	Technological options
1	Above 2 Million	>1100 TPD	Biodegradables 35 to 50 %	IWP comprising -BM +CC+ RDF. W to E plant for power, based on: gasification, pyrolysis, incineration and mass burning. RDF to cement industry Plastic to fuel oil
2	1 M to 2 Million	550 to 1100 TPD	Biodegradables 40 to 55 %	IWP comprising -BM +CC+ RDF. W to E plant for power, where wastes exceeds 500 TPD based on: gasification , pyrolysis, incineration and mass burning. RDF to cement industry Plastic to fuel oil
3	1 Lakh to 10 Lakh	30 to 550 TPD	Biodegradables 40 to 55 %	IWP-BM, CC + RDF as feed stock to power plant / cement industry. Plastic to fuel oil
4	50,000 to 1 Lakh	10 to 30 TPD	Biodegradables 45 to 60 %	BM, VC or CC RDF
5	Less than 50,000	Less than 10	Biodegradables 45 to 65 %	BM,VC / CC and RDF
6	Hill towns	State capitals	Biodegradables 30 to 50 %	BM, CC / RDF as feed stock. Plastic to fuel oil

*IWP- Integrated Waste Plant, BM- Biomethanation, VC- Vermi compositing,CC- Chemical Conversion, RDF- Refused Drive Fuel

From the above table, cities having population 1 lakh to above 2 million can adopt the most common technology to treat waste 500TPD to above 1100 TPD in an Integrated

way comprising waste treatment plants of Biomethanation, Chemical Conversion and Refused Drive Fuel. For treating the waste the composition of biodegradable waste should be varies from 30 to 60 % depending upon the generation of waste and the technologies those are in practice. For population less than 50,000 technologies like vermin-compositing and biomethanation can be used as they are more effective. The Hilly areas having land crisis, the technologies like biomethanation, vessel composting, static pile composting, RDF, etc. can be used. The desired characteristics of waste for various technologies are given at **Table-3 (Annexure-II).**

4.0 Key Criteria For Solid waste Incineration

MSW incineration projects are appropriate only if the following overall criteria are fulfilled:

- A mature and well-functioning waste management system has been in place for a number of years.
- Incineration is especially relevant for the dry bin content in a 2-bin system . For unsegregated waste, pre-treatment is necessary.
- The lower calorific value (LCV) of waste must be at least 1450 kcal/kg (6MJ/kg) throughout all seasons. The annual average LCV must not be less than 1700 kcal/kg (7 MJ/ kg) .
- The furnace must be designed in line with best available technologies to ensure stable and continuous operation and complete burn out of the waste and flue gases.
- The supply of combustible waste should be stable and amount to at least 500 tonnes/ day.
- Produced electricity and/ or stream can be sold at a sustainable basis (e.g. feeding into the general grid at adequate tariffs). It is possible to absorb the increased treatment cost through management charges, tipping fees
- Skilled staff can be recruited and maintained.

- Since the capital investment is very high, the planning framework of the community should be stable enough to allow a planning horizon of 25 years or more.
- Pre-feasibility study for the technology led to positive conclusions for the respective community.
- Strict monitoring systems are proposed and monitored.

5.0 Key Considerations for operation of Incinerators

Incineration of municipal solid waste should meet with the following criteria:

- Minimum gas phase combustion temperature of 850 °C and a minimum residence time of the flue-gases, of two seconds after the last incineration air supply.
- Optimum oxygen content (~lower than 6%) should be maintained in order to minimize corrosion and ensure complete combustion. The carbon monoxide content of the flue gas is a key indicator of the quality of combustion
- Fly ash acts as a catalyst for de-novo synthesis (at 200-450°C) of dioxins and furans. In order to reduce formation of dioxins and furans, it is imperative that maximum fly ash is removed before gases cool down to 200-450°C.
- The flue gases produced in the boilers should be treated by an elaborate flue gas treatment system.

6.0 Waste to Energy Initiatives:

The Ministry of New & Renewable Energy (MNRE) granted 5 waste to-Energy projects under their programme on energy recovery from municipal waste. Waste-to-Energy plants are intended to comply with international emission standards. Details of the 5 plants supported by MNRE are given below:

Delhi: Timarpur-Okhla Waste Management Co Pvt Ltd: an initiative of M/s Jindal ITF Ecopolis. The incineration plant was commissioned in January 2012 and is processing 2000 tons per day (TPD) for generating power of 16 MW.

Delhi, Ghazipur: out of the 2,000 TPD of waste received at the landfill site daily, the facility is processing 1,300 TPD to generate 750 TPD of RDF and 12 MW power. The project is under trial run with effect from March 2016. The operator is M/s ILFS on PPP mode.

Bangalore: BBMP has initiated installation of 8 MW power plant in Bangalore for processing 1000 TPD of waste. M/s Srinivasa Gayithri Resources Recovery Ltd is operator on PPP mode. The project is under installtion.

Pune: A 10 MW gasification plant is being set up in Pune with funds from MNRE. The plant will need 700 TPD of waste for production of 10 MW of electricity.

Hyderabad: 11 MW power plant, which will utilize 1,000 TPD of MSW, is being installed in the Nalagonda district. The plant will produce RDF for in-house incineration and power generation. The plant is currently under construction.

In general, three different designs can be distinguished. The nomenclature comes from the flow direction of the flue-gases in relation to the waste flow: unidirectional current; counter-current and medium current/centre flow furnace. The centre flow furnace is most ideal for mixed MSW which is highly variable in quality. A good mixture of all partial fluegas currents must be considered through mixture-promoting contours and/or secondary air injections.

References:

(i) Report of the Taskforce on Waste to Energy (Vol-I), Planning Commission, May, 2014
(ii) Manual on Solid Waste Management and Handling, Ministry of Urban Development (2000)
(iii) Solid Waste Management Rules, 2016

Annexure-I

Table-2: Indicative Land Requirements for Different Composting Technologies

Parameters	Windrow	Static	In-vessel	Vermicomposting
General	Simple Technology	Effective for farm and municipal use	Large- scale systems for Commercial applications	Suitable for quantities less than 50 TPD generation of mixed MSW
Amount of waste treated	1 ton-500 tons per Module	1 ton-500 tons per module	1 ton-300 tons per module	1 ton- 50 tons
Land Requirement	8 ha – 500 TPD	5 ha - 500 TPD (Less land required given faster rates and effective pile volumes)	4 ha - 500 TPD (Very limited land due to rapid rates and continuous operations)	2 ha: 50 TPD
Time	8 weeks	5 weeks	3 weeks (3-5 days in vessel; 3 weeks to mature)	8 weeks
Ambient Temperature	Not temperature sensitive	Not temperature sensitive	Not temperature sensitive	Temperature sensitive (30-40°C Ideal range; 35-37°C specific to particular earthworm sp.)
Energy Input	Moderate	Moderate (2-3 hours aeration)	High	Low
Financial Implications	Moderate	Costly	Very Costly	Moderate. Purchase of exotic Earthworms suitable for MSW composting are expensive
Odour/ Aesthetic Issues	Odour is an issue if turning is inadequate	Moderate. Odour can occur but controls can be used such as pile insulation and filters on air system	Minimum. Odour can occur due to equipment failure or system design failure	None

(Source: Manual of MSW, May 2014)

Annexure-II

Table-3: SPECIFICATIONS FOR VARIOUS TYPE OF WASTE PROCESSING TECHNOLOGIES

S.No.	Method	MSW characteristics	C/N ratio	pH Control	Temperature required	Moisture Content
1	Composting	Sorted organic fraction of MSW, preferable with same rate of decomposition	Between 25—50 initially. Release of ammonia and impeding of biological activity at lower ratios	7—7.5 (optimum). Not above 8.5 to minimize nitrogen loss in the form of ammonia gas	50-55°C for first few days and 55-60°C for the reminder composting period. Biological activity reduces significantly at higher temperature	55% (optimum)
2	Incineration	MSW with calorific value as high as possible; Volatile matter >40%; Fixed carbon <15%; Total inert <35%	Calorific Value-As high as possible; >1200 kcal/kg	–	850°C to 1400°C	As minimum as possible; <45%
4	Pyrolysis	–	–	6.5-8.5 (optimum)	elevated temperatures 700°C-900°C	–
5	Gasification	–	–	–	Temperature greater than 1000°C	–
6	Biomethanation	Sorted organic fraction only; Higher the putrescibility, better is the gas yield; Fibrous organic matter is undesirable as the anaerobic microorganisms do not break down woody molecules such as lignin	25-30 (preferable)	Acidogenic bacteria through the production of acids reduce the pH of the tank. Methanogenic bacteria operates in a stable pH range and temperature	Mesophilic bacteria act optimally around 37°-41°C or at ambient temperatures between 20°-45°C. Thermophilic bacteria act optimally around 50°-52° and at elevated temperatures up to 70°C. Mesophiles are more tolerant to changes in environmental conditions and hence more stable, but thermophiles act faster.	>50%; Implications on feed, gas production, system type, system efficiency

	Vermi composting	Any organic waste which are not appreciably oily, spicy, salty or hard and that do not have excessive acidity and alkalinity	30:1 (preferred). Brown matter (wood products, saw dust, paper etc) is rich in carbon and green matter (food scraps, leaves etc) in nitrogen.	Slightly alkaline state preferable. Correction by adding small dose of calcium carbonate	20—30oC	40-55% preferable; cover the tank with wet sack and sprinkle water as required

CPCB

LiFE Lifestyle for Environment

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार.
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA.

F.No. CM-13011/125/2024-LAW-HO-CPCB-HO

Date: 11.12.2024

To,

The Members Secretary SPCBs/PCCs (As per list)

Subject: Compliance of Hon'ble NGT, PB, order dated 15.5.2024 & 12.11.2024 in the matter of Suo Motu matter O.A. No. 536/2024, regarding "Waste to Energy: Smokescreen or Solution?" appearing in the Indian Development Review on 27.03.2024.

References: i. Hon'ble NGT order dated 15.5.2024 & 12.11.2024

ii. CPCB letter no. F. No. CM-13011/125/2024-LAW-HO-CPCB-HO

Sir/Madam,

This is in reference to Hon'ble NGT, PB order dated 12.11.2024 (Copy enclosed), the directions given in para 3, is represented below:

"....That apart, we find that in the report the full details of waste-to-energy plants that are not complying with the norms have not been filed. Hence, we give an opportunity to Counsel for CPCB to appear and produce all the materials and details relating to waste to energy plants that are not complying with the norms."

In this regard , it is to inform that in compliance to Hon'ble NGT order dated 15.5.2024 in this matter , CPCB vide letter dated 7.08.2024, requested to provided information related to Waste to Energy (WtE) plants in your State/UT including the monitoring details & compliance with the environmental norms in the prescribed format.

In view of the recent NGT Order on the matter, it is requested to provide the complete information related to MSW based Waste to Energy (WtE) plants in your State/UT including the monitoring details & compliance to the environmental norms along with list of non-complying WtE plants with full details during last five years (Format enclosed). The information may please be provided through email to swm.cpcb@gov.in latest by December 16, 2024.

Your Faithfully,

Div.

(Divya Sinha)
Director & Divisional Head (UPC-II)

Copy to:
1. DH, Law Div
2. PS to MS: For information of MS, please

(Divya Sinha)

List of SPCBs/PCCs

S.No.	Name of State/UT
1	**Arunachal Pradesh State Pollution Control Board** Paryavaran Bhawan, Papu Hill, Yupia Road, Naharlagun - 791110
2	**Delhi Pollution Control Committee** 4th Floor, ISBT Building, Kashmiri Gate, Delhi – 110006
3	**Himachal Pradesh Pollution Control Board** Him Parivesh, Phase-III, New Shimla, Himachal Pradesh – 171009
4	**Karnataka State Pollution Control Board** Parisara Bhavan, 4th & 5th Floor, #49, Church Street, Bangalore – 560001
5	**Uttar Pradesh Pollution Control Board** Building No. TC-12V, Vibhuti Khand, Gomti Nagar, Lucknow – 226010
6	**Uttarakhand Pollution Control Board** Gaura Devi Paryavaran Bhawan, 46B, IT Park, Sahastradhara Road, Dehradun – 248001
7	**Gujarat Pollution Control Board** Paryavaran Bhavan, Sector 10-A, Gandhinagar – 382043
8	**Madhya Pradesh Pollution Control Board** Parayavaran Parisar, E-5, Arera Colony, Bhopal – 462016
9	**Telangana State Pollution Control Board** Paryavaran Bhavan, A-3, Industrial Estate, Sanath Nagar, Hyderabad – 500018
10	**Haryana State Pollution Control Board** C-11, Sector-6, Panchkula – 134109, Haryana
11	**Maharashtra Pollution Control Board** Kalpataru Point, 2nd-4th Floor, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai – 400022
12	**Andhra Pradesh Pollution Control Board** D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada – 520010

Format I(a)

Information related to WtE plants									
Name of SPCB/PCC:									
S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WT(TPD) E & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC Imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non compliance)
1									
2									
3									
4									

I (b)

List of non-complying WtE plant

S.No.	Name of Non complying WtE plant as per monitoring in last 5 years with address	Full details of non-compliance	Remarks
1			
2			

ANDHRA PRADESH POLLUTION CONTROL BOARD
Dr. Y.S.R. Paryavaran Bhavan, APIIC Colony Road,
Gurunanak Colony, Autonagar, Vijayawada- 520007
Phone. No.0866-2463200, Website: https://pcb.ap.gov.in/

Lr. No. APPCB-11022/525/2024-TEC-CTO-APPCB **Dt. 05/11/2024**

To
The Director & Divisional Head (UPC-II)
Central Pollution Control Board (CPCB),
Parivesh Bhawan,
East Arjun Nagar, Delhi – 110032.

Sub: APPCB- HO- Air- Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated: 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024- Information in prescribed format – Furnished- Reg.,

Ref: F No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024.

***

In the reference cited, the CPCB requested all SPCBs to provide the information related to Waste to Energy (WtE) in the state in prescribed format.

In this regard, it is informed that there are two (2) Waste to Energy (WtE) plants existing in the state of Andhra Pradesh. The data related to Waste to Energy (WtE) plants in the State of Andhra Pradesh in the prescribed format is enclosed for information.

Encl. as above.

Yours faithfully,

S SRI SARAVANAN, MS(SS)., O/o MEMBER SECRETARY-APPCB

Digitally Signed by S Sri Saravanan
Date: 05-11-2024 15:40:15
Reason: Approved

Andhra Pradesh Pollution Control Board

Information related to WtE Plants

S.No.	Name of WtE Plant with address	CTE/CTO / Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/power /heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No). If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	M/s. Jindal Urban Waste Management (Visakhapatnam) Limited, Sy. Nos. 410 & 415, Kapuluppada (V), Bheemunipatnam (M), Visakhapatnam District	CTO order dated: 20.11.2023 with a validity period upto 30.11.2028 (copy enclosed).	Capacity: 1372 TPD MSW. Technology: Mass Incineration Product: Electricity – 15 MW	Average through put at 1500 Kcal/ kg	Bottom ash Generation:26% (357 TPD) Fly ash Generation:2.3% (32.05 TPD) Handling & Disposal: Bottom ash is dispensing to the low-lying areas and Fly ash to the brick manufacturing units.	Yes 20.09.2024. (analysis reports of stack, ambient & effluent are enclosed). The facility provided Online Continuous Emission Monitoring System (OCEMS) and connected to CPCB & APPCB websites and is regularly monitored. As per the online values, the PM value ranges from Min – 1.9 mg/Nm^3 to Max 15.18 mg/Nm^3. The SO_2 value ranges from Min – 24.02 mg/Nm^3 to Max – 102.19 mg/Nm^3	Manual monitoring parameters are Emission: PM Ambient: PM 2.5, PM 10, SO_2, NO2, NH3 Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27° C)	As per the analysis reports the PM values are within the permissible limits of the standards prescribed in the consent order. Dioxins & Furans will be monitored.	It is observed from the online data that the PM, SO2 & NOx parameters are within the stipulated standards. In case the parameters exceed the standards, the SMS alerts are being sent to the Industry, automatically through online, so that they can rectify the defect

						The NOx value ranges from Min - 0 mg/Nm³ to Max – 92.46 mg/Nm³ (copy enclosed).			immediately.
2.	M/s Jindal Urban Waste Management Guntur Limited Sy.No.933&938, Naidupeta Dumpyard, Obulanaidupalm(V), Edlapadu (M), Palnadu Dist	CTO order dated:20.03.2024 with a validity period upto 28.02.2029 (copy enclosed).	Capacity: 1620 TPD MSW Technology: Mass Incineration Product: Electricity - 20 MW	Average through put at 1500 Kcal/ kg	Bottom ash Generation:22% (357 TPD) Fly ash Generation: 3% (50 TPD) Handling & Disposal: Research Work is under process. Planning of utilising of Bottom ash and Fly ash as bricks and substitute for construction material	Yes 08.01.2024 (analysis reports are enclosed). The facility provided Online Continuous Emission Monitoring System (OCEMS) and connected to CPCB & APPCB websites and is regularly monitored. As per the online values, the PM value ranges from Min - 0.59 mg/Nm³ to Max - 2.61 mg/Nm³. The SO2 value ranges from Min - 6.11 mg/Nm³ to Max - 68.67 mg/Nm³ The NOx value ranges from Min - 13.42 mg/Nm³ to Max – 100.89 mg/Nm³ (copy enclosed).	Manual monitoring parameters are Emission: PM Ambient: SO2 Effluent: pH, TSS, TDS, COD, BOD (3 days @ 27° C)	As per the stack monitoring report dt. 24.02.2024, the particulate matter exceeded slightly. Subsequently, it is observed from the online monitoring data that the values of the PM are within the permissible limits of the standards prescribed in the consent order. Dioxins & Furans will be monitored.	It is observed from the online data that the PM, SO2 & NOx parameters are within the stipulated standards. In case the parameters exceed the standards, the SMS alerts are being sent to the industry, automatically through online, so that they can rectify the defect immediately.

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN, SECTOR 10-A,
GANDHINAGAR - 382010,
(T) 079-23232152

No. GPCB/MSW-C-57/829749

Date:
20 DEC 2024

To
Ms. Divya Sinha,
Additional Director &IC,
UPC-II, Central Pollution Control Board,
Parivesh Bhawan, CBD cum office Complex,
East Arjun Nagar,
Delhi-110032

Sub: Compliance Hon'ble NGT, PB order dated 15.05.2024 & 12.11.2024 in the matter of Suo-Motu matter O.A. No. 535/2024, regarding "Waste to Energy: Smokescreen or Solution?"Appearing in the Indian Development Review on 27.03.2024

Ref: CPCB letter No. CM-13013/125/2024-LAW-HO-CPCB-HO date 11/12 /2024.

Respected Madam,

With reference to your above letter, regarding compliance to the order dated 15.05.2024 & 12.11.2024 passed by Hon'ble NGT in the matter of O.A.535/2024 "titled Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024" please find attached herewith a copy of information in prescribed format I (a) & I (b) for your kind perusal and necessary action please.

Thank you.

For and on behalf of
Gujarat Pollution Control Board

20/12/24

A.J. Patel
Unit Head, MSW

Encl :- as above

Format: 1 (a)

Information related to WtE plants:

Gujarat state

Name of SPCB/PCC: Gujarat Pollution Control Board

S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation(gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Parameters found non com plying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1	GOODWATTS WTE JAMNAGAR PVT LTD S.no-46/1,46/2/p-1,47,48,49/1,49/2,50/1,50/2,53, Village-Navagam (Ghed), Jamnagar-361008	CCA no- AWH-11 9584, Valid up to 03/04/2027	7.5 MWA Power Generation Capacity/ Incineration / Power	1850	Bottomash-18 % Fly Ash – 4 % and Disposed at Cement plant and send to Corporation	Yes, Last date of monitoring 18/10/2024	PM, SOx, NOx	No	NA
5	HNDAL WTE AHMEDABAD PVT LTD Survey No-115/p, Block no-R.S.N. Shahwadi village , Ahmedabad-382405	CCA AW-135433 Validity Up to-31/03/2029	15 MW Power generation	1300-1750	Bottomash-15-20 %, Fly Ash 3.5 % and send to SLF of Ahmadabad municipal Corporation	Yes, Last date of monitoring 23/10/2024	PM, SOx, NOx	No	NA

Format: 1 (b)

List of Non - Complying WtE plant in Gujarat

Sr. no.	Name of Non complying WtE plant as per monitoring in last 5 years with address	Full details of Non compliance	Remark
	NA		

HARYANA STATE POLLUTION CONTROL BOARD
C-11, SECTOR-6, PANCHKULA
Website – www.hspcb.org.in
E-Mail :hspcbho@gmail.com
Ph:0172-2577870-873

HSPCB/SWM/2024/ 4954 Date: 30/12/2024

To

Smt. Divya Sinha,
Director & DH, (UPC-II),
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar Delhi-110032.

Subject: Compliance of Hon'ble NGT, PB, order dated 15.05.2024 & 12.11.2024 in the matter of Suo Moto OA No. 536/2024, regarding "Waste to Energy:Smokescreen or Solution?" appearing in the Indian Development review on 27.03.2024.

Kindly refer to your letter no. CM-13011/125/2024-LAW-HO-CPCB-HO dated 11.12.20254 on the subject noted above

In this connection, I have been directed to enclose herewith the information pertaining to State of Haryana regarding " Waste to Energy: Smokescreen or Solution" for information and further necessary action please.

DA/As above

30/12/2024

Sr. Env. Engineer (HQ)
For Member Secretary

Information related to WTE plants									
Name of SPCB/PCC: Sonipat									Year-2021-22
S. No.	Name of WTE Plant with address	CTE/CTO/Authorization Validity	Capacity of WTE (TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WTE facility (kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WTE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non-complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	Integrated Solid Waste Management Facility at Murthal Village, Sonipat District, Haryana by Directorate of Urban Local Bodies C/O JBM Environment Management Private LimitedNear 132 KV HVPNL Tajpur Substation, Tajpur-Murthal Road,	CTO obtained upto 30/09/2025 Authorization-1072023SWM35001161 dated 17.10.2023 valid upto-	Electricity - 8 Megawatt Compost 50 Metric Tonnes/Day	1100-1200 Kcal/kg	20% Disposal method-landfilling	Yes (28.12.2021)	Stack Emission PM, HCL, SO2, CO, TOC, HF, Nox, Cd+, Th+, Their compounds, HG, Sb+, As+, Pb+, Cr+, Co+, Cu+, Mn+, Ni+ V+ their Compunds, Total dioxins and furans Treated Leachate TSS, TDS, pH Value, Ammonical nitrogen,	NA	NA

	Murthal Village, Sonipat, Haryana - 131027						Nitrogen, TKN, BOD, COD, Arsenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyandie, Chloride, Fluoride, Phenolic, Compound		

Information related to WTE plants									
Name of SPCB/PCC: Sonipat									Year-2022-23
S. No.	Name of WTE Plant with address	CTE/CTO/Authorization Validity	Capacity of WTE (TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WTE facility (kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WTE plant monitored in last 5 years (Yes/No) if yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non-complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	Integrated Solid Waste Management Facility at Murthal Village, Sonipat District, Haryana by Directorate of Urban Local Bodies C/O JBM Environment Management Private LimitedNear 132 KV HVPNL Tajpur Substation,	CTO obtained upto 30/09/2025 Authorization-1072023SWM3500116 1 dated 17.10.2023 valid upto-	Electricity - 8 Megawatt Compost 50 Metric Tonnes/Day	1100-1200 Kcal/kg	20% Disposal method-landfilling	Yes (10.01.2023)	Stack Emission PM, HCL, SO2, CO, TOC, HF, Nox, Cd+, Th+, Their compounds , HG, Sb+, As+, Pb+, Cr+, Co+, Cu+, Mn+, Ni+ V+ their Compunds, Total dioxins and furans Treated Leachate TSS, TDS,	NA	NA

	Tajpur-Murthal Road, Murthal Village, Sonipat, Haryana - 131027						pH Value, Ammonical nitrogen, Nitrogen, TKN, BOD, COD, Arsenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyandie, Chloride, Fluoride, Phenolic, Compound		

Information related to WTE plants									
Name of SPCB/PCC: Sonipat									Year-2023-24
S. No.	Name of WTE Plant with address	CTE/CTO/Authorization Validity	Capacity of WTE (TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WTE facility (kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WTE plant monitored in last 5 years (Yes/No) if yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non-complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	Integrated Solid Waste Management Facility at Murthal Village, Sonipat District, Haryana by Directorate of Urban Local Bodies C/O JBM Environment Management Private LimitedNear 132 KV HVPNL Tajpur Substation,	CTO obtained upto 30/09/2025 Authorization-1072023SWM3500116 1 dated 17.10.2023 valid upto-	Electricity - 8 Megawatt Compost 50 Metric Tonnes/Day	1100-1200 Kcal/kg	20% Disposal method-landfilling	Yes (30.09.2023)	Stack Emission PM, HCL, SO2, CO, TOC, HF, Nox, Cd+, Th+, Their compounds , HG, Sb+, As+, Pb+, Cr+, Co+, Cu+, Mn+, Ni+ V+ their Compunds, Total dioxins and furans Treated Leachate TSS, TDS,	NA	NA

	Tajpur-Murthal Road, Murthal Village, Sonipat, Haryana - 131027						pH Value, Ammonical nitrogen, Nitrogen, TKN, BOD, COD, Arsenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyandie, Chloride, Fluoride, Phenolic, Compound		

Information related to WTE plants									
Name of SPCB/PCC: Sonipat									Year-2024-25
S. No.	Name of WTE Plant with address	CTE/CTO/Authorization Validity	Capacity of WTE (TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WTE facility (kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WTE plant monitored in last 5 years (Yes/No) if yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non-complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	Integrated Solid Waste Management Facility at Murthal Village, Sonipat District, Haryana by Directorate of Urban Local Bodies C/O JBM Environment Management Private LimitedNear 132 KV HVPNL Tajpur Substation,	CTO obtained upto 30/09/2025 Authorization-1072023SWM35001161 dated 17.10.2023 valid upto-	Electricity - 8 Megawatt Compost 50 Metric Tonnes/Day	1100-1200 Kcal/kg	20% Disposal method-landfilling	Yes (16.03.2024)	Stack Emission PM, HCL, SO2, CO, TOC, HF, Nox, Cd+, Th+, Their compounds, HG, Sb+, As+, Pb+, Cr+, Co+, Cu+, Mn+, Ni+ V+ their Compunds, Total dioxins and furans Treated Leachate TSS, TDS,	NA	NA

	Tajpur-Murthal Road, Murthal Village, Sonipat, Haryana - 131027						pH Value, Ammonical nitrogen, Nitrogen, TKN, BOD, COD, Arsenic, Hg, Lead, Cd, Cr, Cu, Zinc, Nickel, Cyandie, Chloride, Fluoride, Phenolic, Compound		

List of non-complying WtE plant

S. No.	Name of Non-complying WtE plant as per monitoring in last 5 years with address	Full details of non-compliance	Remarks
Nil			

MADHYA PRADESH POLLUTION CONTROL BOARD
Paryawaran Parisar, E-5, Arera Colony, Bhopal - 462016 (M.P.)
Phone : (0755) 2464428, 2466191, Website: www.mppcb.nic.in,
E-mail: it_mppcb@rediffmail.com

No. 5154 /MSW/MPPCB/2024 Bhopal, Date : 19-12-2024

To,

Ms. Divya Sinha,
Additional Director & I/C, UPC-II,
Central Pollution Control Board,
Parivesh Bhawan, CBD cum office Complex,
East Arjun Nagar, Delhi-110032

Sub- **Compliance Hon'ble NGT, PB order dated 15.05.2024 & 12.11.2024 in the matter of Suo Motu matter O.A. No. 536/2024, regarding "Waste to Energy: Smokescreen or Solution?"appearing in the Indian Development Review on 27.03.2024**

Ref- CPCB letter No. CM-13011/125/2024-LAW-HO-CPCB-HO date 07/08/2024

With reference to your above letter, regarding compliance to the order dated 15.05.2024 & 12.11.2024 passed by Hon'ble NGT in the matter of O.A. 536/2024 "titled Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024" please find attached herewith a copy of information in prescribed format I (a) & I (b) for your kind perusal and necessary action please.

Encl :- as above

(A.A.Mishra)
Member Secretary

Copy to -

1. Principal Secretary, Department of Environment, Mantralaya Bhopal, for information please.
2. Regional Director, Central Pollution Control Board, Paryavaran Parisar, E-5, Arera Colony, Bhopal for information.
3. The Commissioner, Urban Administration & Development Department, Bhopal, for information & necessary action please.

Format I (a)

Information related to WtE plants									
Name of SPCB/PCC: Madhya Pradesh Pollution control Board									
S. No	Name of WtE Plant with Address	CTE/CTO /Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/power/ heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	M/s Rewa MSW Energy Solution Pvt (Waste to Energy Plant)	CTO Valid up to 31.12.2024 Auth. Valid up to 31.12.2028	500 TPD WtE plant incineration in Boiler Power generation 6 MW	1150	15-18% Disposal Method - Landfill	Yes WtE plant commissioned 11.02.2024. Monitoring on 16.05.2024 Online Emission monitoring system installed	PM, CO, NOx, So_2, HCL	No	NA
2.	M/s Jabalpur MSW Pvt. Ltd Kathonda, Jabalpur (MP	CCA Renewal valid up to 28.02.2025 Auth. Valid up to 28.02.2025	600 TPD WtE plant incineration in Boiler Power Generation 11.5 MW WTE Plant	1650 to 2250 Kcal (Mix)	15 % Bottom ash and 1.5 % Fly ash Disposal Method - Landfill	Yes WtE plant commissioned 29.02.2016 & Monitoring from 2016. Online Emission monitoring system installed	PM, NOx, So_2	NO	NA

संजय अलावा
उपयंत्री

Format I (b)

List of Non – Complying WtE plant

S.No.	Name of Non complying WtE plant as per monitoring in last 5 years with address	Full details of Non-compliance	Remark
NA			

संजय अलावा
उपयंत्री

Information of Waste to Energy Plants w. r. t. OA No. 536/2024 for Maharashtra State.

Sr. No.	Name of W to E Plant with address	C to E / C to O / Authorization Validity	Capacity of W to E (TPD) & Technology Used & Product Formation (Gas/Power/Heat)	Average Calorific Value of Waste received at W to E Facility (Kcal/Kg)	Average Bottom Ash/Fly ash generation (%) & Handling & Disposal Methods	Whether W to E plant monitored in last 5 years (Yes/No). If yes, please provide date of monitoring	Parameters monitored as specified in Schedule-II of SWM Rules, 2016	Parameters found non-complying the norms	Details of action taken (EC imposed, Show Cause/Closure issued, non-renewal of authorisation or any other action taken for non-compliance)
1	Solapur Bio Energy System's Pvt. Ltd. Solapur. Add -74/1 SMCS Vachana Depot, Old Tuljapur Road Solapur- 413002 , Maharashtra	Authorisation Validity Date - 31/12/2032	Capacity - 350 + 25% TPD. Technology Used - DAYARD™ (Biomethanation) Product Formation - Methane gas to Power	Not Apllicable	Not Apllicable	Yes. Date - 31/03/2023	NA	NA	EC imposed of Rs. 2.5 Cr as per Hon'ble NGT OA 33/2022, dtd. 30/11/2022. Warning notice issued on dated 14/03/2024 considering fire incident at legacy waste site, non availability of SLF site, incomplete leachate collection system work, non submission of Bank guarantees.
2	M/s Ansony Eara Enviro Solution Pvt Ltd. MWM Solid waste management project Kanjur	Consent to operate is valid up to 31-10-2026	1) Bio-reactor technology maximum capacity 8500 MTD. Product formation :- landfill gas with rich in Methane about 60% which is converted into electricity.	NA	Not Apllicable	NA	NA	NA	NA
3	(1) Pimpri Chinchwad Municipal Corporation (Owner of the Project) (2)M/s. Anergy Eara Renewable Energy Private Limited, Waste to Energy Project, Gut No. 462, 463, 464, 465, Moshi Kasbara Depot, Moshi, Tal. Haveli, Dist. Pune	Consent to Operate- 30/06/2026 Authorization is valid up to 31/07/2037	700 TPD, Incineration Technology, Power Generation 14MW / H-	Designed Calorific Value : 1650 kcal/Kg Actual Calorific Value ranges between 1900 to 1950 Kcal/Kg	Average Bottom Ash: 15% (Handling through Ash Crane feed to Dumper) Average Fly Ash: 3% (Handling through Bag filter and Flyash Silo) Both Ash disposed at Construction and Demolition Waste	Monitoring through CEMS Stack Monitoring is carried out on 16.05.2024 and 28.05.2024. Parameters HCL, PM & SO2 are within consented limit.	HCL, PM, CO, NOX, SO2-	NA	NA

4	Promt Green Energy Pvt. Ltd. (Formerly known as M/s. Saraswati Biomass Power Pvt.Ltd.) Plot No. 362, 375, Near sangli cheshwari textile, Village - Tung, Tal. Miraj, Dist. Sangli.	Consent to operate is valid up to 31-05-2024	Electricity (from Biomass and RDF) -10 MW	2800-3200 Kcal/Kg (depends upon moisture)	7% (Tractor trolly is sold to brick mfg units.	Yes, 28/02/2021, 19/10/2021, 14/11/2022, 06/02/2023, 13/09/2023, 04/02/2023, 28/11/2023, 23/01/2024, 09/04/2024, 06/05/2024, 25/06/2024, 08/07/2024	SO2, Nox, TPM.	TPH	Warning Notice, Interim Direction, Forefeiting Bank Guarantee.

C-18011/2/2024-MS(ANPCC)-SnT_AN/140
अंडमान तथा निकोबार प्रशासन
ANDAMAN & NICOBAR ADMINISTRATION
प्रदूषण नियंत्रण समिति
POLLUTION CONTROL COMMITTEE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
Dolly Gunj, Port Blair-744 103 Tel/Fax 250370
E-mail: dstandamans@gmail.com, dstpcc-andamans@nic.in

Port Blair, dated: 26-08-2024

To,

The Director/ Divisional Head (UPC-II)
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi-110032.

Sub: **Hon'ble NGT Suo Moto matter O.A.536/2024 pertaining to the order dated 15.05.2024, reg "Waste to Energy; Smoke screen or Solution?" as published in the Indian Development review on 27.03.2024** -reg;

Ref.: Your office letter vide No. CP-II/121/20233-IPC-V-HP-CPCB-HO dated 19.01.2024

Madam,

This is with reference to your office letter wherein it is desired to furnish the information regarding the Waste to Energy plants operating in the states/UT.

In this regard, it is to inform that there are no Waste to Energy plants existing in A&N Islands. Therefore, consider the report as **'NIL'.**

Yours faithfully,

Member Secretary ANPCC

Copy To,

1. PS to Secretary, S&T for kind information of the Secretary, S&T, A&N Administration.

Member Signed by Abhishek Bhakal
Date: 23-08-2024 21:56:01

ANNEXURE-I

Information related to Waste to Energy plants									
Name of PCC : Andaman Nicobar Pollution Control Committee									
Sl No	Name of WtE plant with Address	CTE/CTO/ Authorization validity	Capacity of WtE & Technology used & product information	Average calorific value of waste received at WtE facility	Average bottom ash/fly ash generated	Whether plant monitored in last 5 year	Parameters monitored as specified in scheduled SWM rules	Parameters found non-complying the norms	Details of action taken
NIL									

Re: Hon'ble NGT order dated 15.05.2024 & 12.11.2024 in OA 536/2024-reg.

ar arunachalspcb@gmail.com
Thu, 26 Dec 2024 11:28:57 AM +0530

To "SWM, CPCB" <swm.cpcb@gov.in>

Tags Not in Contacts

Sub: Compliance of Hon'ble NGT, Principal Bench order dated 15th May, 2024 and 12th November, 2024 in the matter of Suo motu Original Application No. 536/2024 regarding "Waste to Energy: Smokescreen or Solution?" appearing in the Indian Development Review on 27/03/2024.

Sir/Madam,

In reference to the subject cited above, find herewith the necessary information in respect of Arunachal Pradesh.

Format I (a)

Information related to WtE plants								
Name of SPCB/PCC: **ARUNACHAL PRADESH STATE POLLUTION CONTROL BOARD**								
S. No.	Name of WtE Plant with address	CTE/CTO/Authorization validity	Capacity of WTE (TPD) & Technology used & product formation (gas/power/heat)	Average calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation on (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No). If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	**There is no WtE plant in the State. Hence, this is Not Applicable.**							

I (b)
List of non-complying WtE plant

S. No.	Name of non complying WtE plant as per monitoring in last 5 years with address	Full details of non-compliance	Remarks
1.	**There is no WtE plant in the State. Hence, this is Not Applicable.**		

This is for favour of kind information and necessary further action.

(R. Kimsing)
A.E.E.
APSPCB, Naharlagun

On Tue, 24 Dec 2024 at 18:07, Sunil Parashar <swm.cpcb@gov.in> wrote:

Annexure: II

Information related to WtE plants									
Name of SPCB/PCC: Pollution Control Board, Assam									
S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE(TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1	No WTE Plants in the State of Assam								

CHANDIGARH

Chandigarh Pollution Control Committee

Paryavaran Bhawan, Madhya Marg, Sector 19-B,Chandigarh- 160019

No. CPCC/2024/1355

Dated: 28.08.24

To

Central Pollution Control Board,
Ministry of Environment, Forest & Climate Change (Govt. of India),
Parivesh Bhawan, East Arjun Nagar,
New Delhi - 110032.

Sub: Hon'ble NGT Suo Motu matter OA. No, 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required – reg.

.....

This is with reference to the email dated 07.08.2024 on the subject cited above.

In this regard, it is informed that there is no Waste to Energy plant in Chandigarh. However, there is 01 No. Refused Derived Fuel (RDF) plant of 200 Tonnes/day capacity. The RDF is produced by shredding of segregated dry waste which is then sold to cement units in nearby states.

(T.C. Nautiyal, IFS)
Member Secretary
&
O/C

LiFE Lifestyle for Environment

छत्तीसगढ़ पर्यावरण संरक्षण मंडल

पर्यावास भवन, नार्थ ब्लॉक, सेक्टर – 19,
नवा रायपुर अटल नगर, रायपुर (छ.ग.) 492002
Email add - hocecb@gmail.com

4546

क्रमांक /तक./मु./ छ.ग.पं.सं.मं./2024 नवा रायपुर अटल नगर दिनांक 26/8/2024

प्रति,

सदस्य सचिव,
केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
परिवेश भवन, ईस्ट अर्जून नगर,
शाहदरा, दिल्ली–110 032

विषय :– Hon'ble NGT Suo Moto matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Engery Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-reg.

—:: 00 ::—

उपरोक्त विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से आपके द्वारा Hon'ble NGT Suo Moto matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Engery Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-reg के संबंध में निर्धारित प्रारूप में जानकारी चाही गई है। उक्त के परिप्रेक्ष्य में लेख है कि छत्तीसगढ़ पर्यावरण संरक्षण मंडल द्वारा राज्य में Waste to Engery (W&E) plants हेतु स्थापना सम्मति/संचालन सम्मति/अनुमति नहीं दी गई है। अतः उक्त के संबंध में चाही गई जानकारी निरंक है।

सदस्य सचिव
छत्तीसगढ़ पर्यावरण संरक्षण मंडल,
नवा रायपुर अटल नगर, रायपुर (छ.ग.)

Hon'ble NGT Suo Motu Matter O.A. No. No.536/2024, petaining to the order dated 15.05.2024 regarding 'Waste to Energy Smokescreen or sollution?" as published in the Indian development review on 27.03.2024 infromation required - reg.

From : Pollution Control Committee <pcc-dnhdd@ddd.gov.in> Fri, Aug 23, 2024 03:58 PM

Subject : Hon'ble NGT Suo Motu Matter O.A. No. No.536/2024, petaining to the order dated 15.05.2024 regarding 'Waste to Energy Smokescreen or sollution?" as published in the Indian development review on 27.03.2024 infromation required - reg.

1 attachment

To : MS, CPCB <mscb.cpcb@nic.in>

Cc : CPCB VADODARA <westzonecpcb@yahoo.com>, PRASOON GARGAVA <prasoon.cpcb@nic.in>, DIVYA SINHA <divyasinha.cpcb@nic.in>, Finance Secretary DNH and DD <fs-dmn-dd@nic.in>

Respected Sir,

Please find the attachment herewith letter No.PCC/DDD/SWM-16/2016-17/143, dated 23/08/2024.

Thanks and Regards

O/o. the Member Secretary,
Pollution Control Committee
Dadra & Nagar Haveli and Daman & Diu

scan2907.pdf
833 KB

प्रदूषण नियंत्रण समिति
Pollution Control Committee
संघ प्रदेश प्रशासन दादरा एवं नगर हवेली एवं दमन एवं दीव
U. T. Administration of Dadra and Nagar Haveli and Daman and Diu
प्रथम तल, उद्योग भवन, भेंसलोर, नानी दमन, दमन - ३९६२१०
1st Floor, Udyog Bhavan, Bhenslore, Nani Daman, Daman-396210
Ph.: 0260 - 2262524 / 2260975, e-mail: pcc-dnhdd@ddd.gov.in

No. PCC/DDD/SWM-16/2016-17/143 Date: 23/08/2024

To,
The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
Delhi – 110 032.

Sub: - Hon'ble NGT Suo Motu Matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or solution?" as published in the Indian Development Review on 27.03.2024 information required - reg.

Ref: - UPC – II Div. F. No. CM-13011/125/2024-LAW-HO-CPCB-HO/ dated 07.08.2024

Sir,

With reference to subject, UPC – II Division requested to provide the information related to Waste to Energy (WtE) plants in state/UT including monitoring details & compliance to the environmental norms in prescribe format.

In this regard, please find enclosed information related to WtE plants of U.T. of DNH&DD. Further inform you that, there is no Waste to Energy plants are established/operated in the UT of Dadra Nagar & Haveli and Daman & Diu, for your information please.

(Saurabh Mishra)
Member Secretary,
Pollution Control Committee,
DNH & DD, Daman.

Encl.: Annexure – I

Copy to,

1. The Regional Director, Zonal Office (West), Central Pollution Control Board, "Parivesh Bhawan" Opp. VMC Ward Office No. 10, Subhanpura, Vadodara – 390023 for kind information.
2. Shri Divya Sinha, Director & DH, UPC – II Division, CPCB, New Delhi - 110 032.
3. The Chairman, Pollution Control Committee, DNH & DD for kind information.

Annexure - I

Information related to WtE plants										
Name of PCC: Dadra & Nagar Haveli and Daman & Diu (DNH&DD)										
S. No.	Name of WtE Plant with address	CTE/CTO /Authorizatio n Validity	Capacity of WtE(TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation in (%)	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)	
1	Nil	NA	NA	NA	NA	NA	NA	NA	NA	
Note: Waste to Energy units is not established and operated in U.T. of DNH&DD.										

401

E-207705/03-12-2024

HP State Pollution Control Board
HIM Parivesh Bhawan, Phase-III, New Shimla-09
Phone No. 0177-2673766, 2673020 FAX-0177-2673018

13648

No. HPSPCB/AVMD-I/OA. No. 536 of 2024 /WtE/24 Dated: 23.11.2024

To

The Director & DH (UPC-II)
Central Pollution Control Board
Delhi-110032

Sub(3rd) Dy
Sumati
12/12/2024
HD(SLE)

Subject: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required- reg.

Sir,

In reference to your letter F.No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024 on the above cited subject.

In this context, the information pertaining to the HP State Pollution Control Board on the prescribed format of CPCB is hereby enclosed as **"Annexure-I"**, for kind information and further necessary action please.

Yours faithfully

Encl.: As above

Signed by
Anil Joshi
Date: 21-11-2024 13:40:01

(Anil Joshi, IFS)
Member Secretary
HP State Pollution Control Board

केंद्रीय प्रदूषण नियंत्रण बोर्ड
21 NOV 2024
Central Pollution Control Board

UPC-II

202

ANNEXURE-I

Sr. No.	Name of WtE Plant with address	CTE/CTO /Authorization (Validity	Capacity of WtE TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule - II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	ELEPHANT ENERGY PVT.LTD. TARADEVI AIRPORT ROAD BHARYAL SHIMLA - 171011	MARCH 2025	90 TPD GASIFICATION POWER GENERATION	2050 KCAL/KG	12% SENDING TO CEMENT PLANT	24/06/2024 09/08/2024	SPM= 52.08 mg/nm^2	NO	NO

Jammu and Kashmir Pollution Control Committee

Parivesh Bhavan, Forest Complex
Transport Nagar, Jammu, 180 006 || Silk Factory Road
Rajbagh, Srinagar, 190 008

Tel - 0191-2476927; mail - membersecretaryjkpcb@gmail.com

NGT matter
OA No. 536 / 2024

Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032.

No.: JKPCC/Sc./OA 536-2024/24/451 Date: 09-08-2024

Sub: Hon'ble National Green Tribunal Suo Motu matter OA No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-reg.

Ref: F. No. CM-13011/125/2024-LAW-HO-CPCB-HO; dt. 07.08.2024.

Sir,

With regard to your office No. *F. No. CM-13011/125/2024-LAW-HO-CPCB-HO; dt. 07.08.2024* referred above, on the subject captioned above, it is submitted that there is no Waste to Energy (WtE) plant operational in Jammu & Kashmir.

Yours Sincerely,

(GhanSham Singh) JKAS
Member Secretary 9.8.24

☎: General: 0471- 2312910, 2318153, 2318154, 2318155 Chairperson: 2318150 Member Secretary: 2318151
e-mail: chn.kspcb@gov.in; ms.kspcb@gov.in FAX: 2318152 web: kspcb.kerala.gov.in

KERALA STATE POLLUTION CONTROL BOARD
കേരളസംസ്ഥാന മലിനീകരണ നിയന്ത്രണ ബോർഡ്
Pattom P.O., Thiruvananthapuram – 695 004
പട്ടം പി.ഒ., തിരുവനന്തപുരം – 695 004

KSPCB/HO/EE3/SWM-WtEP

Date: 21.08.2024

From

The Member Secretary

To

The Member Secretary
Central Pollution Control Board

Sub: Hon'ble NGT Suo Motu O.A 536/2024 – information on waste to energy plants in Kerala – reg

Ref: Letter No. F.No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 09.04.2024 from The Director & DH (UPC-II), CPCB

Sir,

Kind attention is invited to the subject matter. The details called for vide ref. cited, is submitted herewith in the required format for kind information and necessary action.

Yours faithfully,

MEMBER SECRETARY

Copy to:

1. The Director &DH , CPCB (swm.cpcb@gov.in)

Annexure: I

Information related to WtE plants									
Name of SPCB/PCC:									
Sl. No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE(TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1	Integrated Solid Waste Management Project with Waste to Energy Plant at Kanjikkode in Palakkad District	CTE issued on 21/12/2021 Validity up to - 31/11/2024 Construction of Plant to be commenced in September 2024	Waste to be Received :200-240 tons/day Organic: 100-130 tons/day <u>Product:</u> CBG to be produced: 4200-4600 kg's/day RDF to be produced : 60 tons/day Organic manure to be produced:30-36 tons/day	-	-	-	-	-	-

ADMINISTRATION OF THE UNION TERRITORY OF LADAKH
LADAKH POLLUTION CONTROL COMMITTEE
e-mail: *memebersecretarylpcc@gmail.com* /Ph.No.:01982-463550

The Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
New Delhi-110032.

No: LPCC/ UTL/O. A-536/2024/ 310-312 Date: 10 /08/2024

Sub: Hon'ble NGT *Suo Motu* matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "waste to Energy: Smokescreen or solution?" as published in the Indian Development Review on 27.03.2024, information required- reg.

Ref: CPCB- F. No.CM–13011/125/2024–LAW-HO–CPCB–HO, dt: 07.08.2024.

Sir,

Kindly refer to the communication no: F. No.CM–13011/125/2024–LAW-HO–CPCB–HO dt: 07.08.2024 regarding the Waste to Energy (WtE) plants in State/UT including monitoring details and compliance to the environmental norms.

In this regard, the information with respect to Annexure-II related to Waste to Energy (WtE) plant in UT of Ladakh may be treated as Nil.

Yours faithfully,

10/8/24

B.M. Sharma, IFS,
Member Secretary,
LPCC- Ladakh.

Copy to the:

(i) Chairman, Ladakh Pollution Control Committee, UT Ladakh for favour of Information.
(ii) Ms. Divya Sinha, Director & DH (UPC-II), CPCB, New Delhi, for information. *(swm.cpcb@gov.in)*

लक्षद्वीप प्रशासन
विज्ञान एवं प्रौद्योगिकी विभाग
लक्षद्वीप प्रदूषण नियंत्रण समिति
कवरत्ती द्वीप – 682555
E-mail: lk-dst@nic.in

File No: NGT/536/2024-LPCC Dated 20.08.2024

To

Smt. Divya Sinha
Director & Divisional Head, (UPC-II)
Central Pollution Control Board,
East Arjun Nagar, Delhi- 110 032

Sub: Hon'ble NGT order dated 15.05.2024 in OA No. 536/2024 in the National Green Tribunal, Principal Bench, New Delhi- Regarding

Sir,

Kindly refer your letter F.No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024 regarding Hon'ble NGT order dated 15.05.2024 in OA No 536/2024 in the National Green Tribunal, Principal Bench, New Delhi.

In this regard, it is to inform that, Union Territory of Lakshadweep has no Waste to Energy (WtE) Plants. This is for your kind information.

Yours faithfully,

V. S. K. Reddy

(Santosh Kumar Reddy V)
MEMBER SECRETARY, LPCC

Copy to PA to Advisor to the Hon'ble Administrator, UTLA and Chairman, LPCC

NGT matter

NO.3 / PPCC / SWM / JSA / 2024/ 715

GOVERNMENT OF PUDUCHERRY
DEPARTMENT OF SCIENCE TECHNOLOGY AND ENVIRONMENT
PUDUCHERRY POLLUTION CONTROL COMMITTEE
3rd Floor, PHB Building, Puducherry – 605 005.
Telephone: (0413) 2201256 Telefax: (0413) 2203494

* * *

Puducherry, dated

14 AUG 2024

To
The Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi -110 032.

Sir,

Sub: PPCC - Hon'ble National Green Tribunal Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024 – Reply furnished - Reg.

Ref: F.No. CM-13011/125/2024-LAW-HO-CPCB-HO; dt.07.08.2024.

* * *

With reference to the above mentioned subject, it is submitted that there is no Waste to Energy (WtE) plant operational in the U.T. of Puducherry.

Yours sincerely,

N. Ramesh

(Dr. N. RAMESH)
Member Secretary (PPCC)

Copy to: Guard file.

Meghalaya State Pollution Control Board
Forests & Environment Department, Government of Meghalaya
'ARDEN' Lumpyngngad, Shillong - 793014
Website : http://megspcb.gov.in

mspcb

No. MPCB/GEN-297/VOL-II/2024/2024-2025/58 Dtd. Shillong, the 30th August, 2024

To,

Director & DU (UPC-II)
Central Pollution Control Board,
Ministry of Environment, Forest & Climate Change,
Parivesh Bhavan, East Arjun Nagar, Delhi-110032.
Email: swm.cpcb@gov.in ,

Sub: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-reg.

Ref: F.No.CM-13011/125/2024-LAW-HO-CPCB-HO, Dated:07.08.2024

Sir,

With reference to the above, this is to inform that there is no Waste to Energy (WtE) Plant registered within the Meghalaya State Pollution Control Board.

This is for your kind information and necessary action

Yours Faithfully,

(Dr. G.H CHYRMANG, MFS)
MEMBER SECRETARY,
Meghalaya State Pollution Control Board,
Shillong.

Contact details : Email : memsecy.spcb-meg@gov.in, megspcb@rediffmail.com; Telephone Numbers: Chairman-0364-2521217; Member Secretary-2522802; Scientific-2521514; Engineering-2521533; Legal-2520044; Laboratory-2521726; Administration-2520073; Accounts-2522124; Telefax-2521764

LiFE Lifestyle for Environment

MIZORAM

Azadi Ka Amrit Mahotsav

MIZORAM POLLUTION CONTROL BOARD

No.H.88088/Poltn/50(118)/2024-MPCB : Dated Aizawl, the 9th August, 2024

To,

The Director & DH (UPC-II)
Central Pollution Control Board
Parivesh Bhawan', C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi – 110032

Sub: **Hon'ble NGT Suo Motu matter OA. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required – reg.**

Ref: **Y/L No. F. No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024**

Madam,

With reference to the subject and your letter no. cited above, may I bring to your notice that there are no Waste to Energy (WtE) plants in the State of Mizoram and hence herewith submit a NIL report in the prescribed format for your kind information.

Yours faithfully,

Enclo.: n/a

(C. LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board

Memo No.H.88088/Poltn/50(118)/2024-MPCB : Dated Aizawl, the 9th August, 2024

Copy to :

The Regional Director, CPCB, Shillong for favour of information and necessary action.

(C. LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board

Mizoram New Capital Complex (MINECO),
Thlânmual Road, Khatla, Aizawl, Mizoram – 796001, Phone: 0389-2336591
website: www.mpcb.mizoram.gov.in email: mpcb@mizoram.gov.in

Information related to WtE plants									
Name of SPCB/PCC: MIZORAM POLLUTION CONTROL BOARD									
S. No.	Name of WtE Plant with address	CTE/CTO/ Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/ power/ heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitores in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in Schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/ Closure issued, non-renewal of authorization or any other action taken for non-compliance)
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Tel :
2564033/2563924
EPABX : 2561909/2562847
E-mail: paribesh1@ospcboard.org
Web site : www.ospcboard.org

STATE POLLUTION CONTROL BOARD, ODISHA

(FOREST, ENVIRONMENT & CLIMATE CHANGE DEPARTMENT, GOVT. OF ODISHA)
Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII
Bhubaneswar – 751012

No. 12574 / IND-I-ULB-29 Date 09/08/2024

By E-mail : SWM.CPCB@GOV.IN

To

The Director and DH (UPC-II),
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Sub: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, Information required-reg.

Ref: Your Office letter F. No. CM-13011/125/2024-LAW-HO-CPCB-HO, dated 07.08.2024

Madam,

With reference to the above cited subject it is to inform you that CTE was granted to only one unit M/s Essel Bhubaneswar MSW Ltd for installation of Waste to Energy Plant of capacity 11.5 MW in the year 2015 for 5 years . However, the unit was failed to establish and the CTE validity expired. The information related to Waste to Energy (WtE) plants in State of Odisha in given format (Annexure-II) is enclosed in compliance to the order dated 15.05.2024 of the Hon'ble NGT.

Yours faithfully,

Encl: As above

09/08/24

MEMBER SECRETARY

Annexure II

Information related to WtE plants									
Name of SPCB/PCC: SPCB, ODISHA									
S.No	Name of WtE Plant with address	CTE/CTO/ Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/power/heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found noncomplying the norms	Details of actions taken (EC imposed, Show cause/ Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	M/s Essel Bhubaneswar MSW Ltd., At-Bhuasuni, Daruthenga, Bhubaneswar (Plot No. 221 & 222, Khata No. 232), Dist-Khordha	M/s. Essel Bhubaneswar MSW Ltd. had obtained CTE to set up of Waste to Energy (MSW) Power Plant of capacity-11.5 MW, in the year 2015, which was valid for five years. However, it has not established the unit and validity of CTE expired. Also not applied for revalidation of CTE.	Capacity-600 TPD for generating power of 11.51 MW	NA	NA	NA	NA	NA	NA

413

214

ਪੰਜਾਬ ਪ੍ਰਦੂਸ਼ਣ ਰੋਕਥਾਮ ਬੋਰਡ
PUNJAB POLLUTION CONTROL BOARD

LiFE Lifestyle for Environment

PPCB/HD/No. 20473 Dated: 16/8/24

To

The Member Secretary,
Central Pollution ControlBoard,
Parivesh Bhawan, East ArjunNagar,
New Delhi.

Subject: **Hon'ble NGT Suo Motu matter O.A No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy: Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required-reg.**

Ref.: **CPCB Letter no. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024.**

Enclosed, please find herewith the information/datajn the desired format with respect to "Waste to Energy" plants in the State of Punjab in compliance to orders dated 15.05.2024 of the Hon'ble NGT for information and further necessary action.

DA/As above

Member Secretary

ਵਾਤਾਵਰਣ ਭਵਨ, ਨਾਭਾ ਰੋਡ, ਪਟਿਆਲਾ
Vatavaran Bhawan, Nabha Road, Patiala - 147001
E-mail : chairman.ptl.ppcb@punjab.gov.in, msppcb@gmail.com
Phone No. 0175-2215793, 0175-2215802

Annexure: II

Information related to WtE plants									
Name of SPCB/TCC:									
S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE (TPD) &Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule -II of SWM Rules, 2016	Parameters found non complying thenorms	Details of actions taken (EC Imposed, Show cause/Closure issued,non-renewal of authorization or any other action taken for non-compliance)
1.	M/s. Amritsar MSW Ltd., near Dana mandi, Amritsar	CTE- Valid till Nov.2024, CTO- yet to be obtained Authorization – under renewal process	600 TPD, RDF Based power generation for 10 MW	3200	Plant is yet to be established	Plant is yet to be established	Plant is yet to be established	Plant is yet to be established	Plant is yet to be established
2.	Ludhiana (Under DPR stage)	Plant is yet to be established & DPR Approval stage	450 TPD, RDF Based power generation for 6 MW	--	Plant is yet to be established& DPR Approval stage	Plant is yet to be established & DPR Approval stage	Plant is yet to be established & DPR Approval stage	Plant is yet to be established & DPR Approval stage	Plant is yet to be established & DPR Approval stage
3									
4									
5									

Rajasthan State Pollution Control Board

Headquarter, 4, Institutional Area, JhalanaDoongri, Jaipur-302004
Phone : 0141- 2716804, 2716800 e-mail : member-secretary@rpcb.nic.in
Helpline No. : 0141-2716877

Registered Post/E-mail

File No. F.16 (MSW-60)/RSPCB/MSW/844-845 Date:- 8/8/24
236

Director & Divisional Head, UPC-II Division
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi-110032.
Email – swm.cpcb@gov.in

Sub: Information related to Waste to Energy plants in compliance of Hon'ble NGT order dated 15.05.2024 in Suo Motu matter O.A. No. 536/2024, regarding.

Ref: Your office letter no. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07.08.2024.

Madam/Sir,

With reference to above, in compliance of Hon'ble NGT order dated 15.05.2024, the information related to Waste to Energy (WtE) plants in Rajasthan State is enclosed in desired format Annexure-II (copy enclosed).

Encl: - As above.

Yours sincerely,

योग्यता
(Yogyata Singh)
EE & GIC (MSW, STP)

Copy to: -
1. Master file, MSW, RPCB, Jaipur.

योग्यता
EE & GIC (MSW, STP)

Information related to WtE plants									
Name of SPCB/PCC:									
S.No.	Name of WtE Plant with address	CTE/CTO /Authorization Validity	Capacity of WtE (TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/ No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1.	M/s JINDAL URBAN WASTE MANAGEMENT (JAIPUR) LIMITED KHASRA NO 362, 363, VILLAGE LANGARREEAWAS JAIPUR Tehsil:Jamwa Ramgarh District:JAIPUR	CTE validity - 31.05.2028	12 MW (power)	Plant not commissioned/ operational till date	Plant not commissioned/ operational till date	Plant not commissioned/ operational till date	-	-	-
2.	M/s JINDAL URBAN WASTE MANAGEMENT (JODHPUR) LIMITED Khasra No1256 6, Kerla Dumping yard, Jodhpur Jaisalmer highway Keru Tehsil:Jodhpur Distt:Jodhpur , Rajasthan	CTE validity – 30.09.2028	6 MW (power)	Plant not commissioned/ operational till date	Plant not commissioned/ operational till date	Plant not commissioned/ operational till date			

Email:spcbsikkim@gmail.com

LiFE Lifestyle for Environment

STATE POLLUTION CONTROL BOARD- SIKKIM
FOREST & ENVIRONMENT DEPARTMENT
GOVERNMENT OF SIKKIM
DEORALI, GANGTOK – 737102

E.No. - /SPCB/733 Dated: 9/8 /2024

To,

The Director & Divisional Head,
UPC-II Division,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032.

Sub: Information related to Waste to Energy Plants in Compliance of Hon'ble NGT Order Dated 15.05.2024 in Suo Motu Matter O.A. No. 536/2024-Regarding.

Sir/Madam,

Reference to your letter no. CM-13011/125/2024-LAW-110-CPCB-110 dated 07.08.2024 on the subject cited above, the information related to Waste to Energy (WtE) plants in Sikkim is enclosed in desired format (Annexure-II) for your kind information please.

Encl:- As above.

Thanking you

Yours Faithfully,

(Kusum Gurung)
Joint Director
State Pollution Control Board-Sikkim

Kusum Gurung
Joint Director
State Pollution Control Board
Forest & Environment Deptt.
Govt of Sikkim

Email:spcbsikkim@gmail.com

LiFE Lifestyle for Environment

STATE POLLUTION CONTROL BOARD- SIKKIM
FOREST & ENVIRONMENT DEPARTMENT
GOVERNMENT OF SIKKIM
DEORALI, GANGTOK – 737102

Annexure: II

Information related to WtE Plants									
Name of SPCB/PCC: State Pollution Control Board-Sikkim									
S. No.	Name of WtE Plant and Address	CTE/CTO /Authorization Validity	Capacity of WtE(TPD) and Technology used and product formation (gas/power/heat)	Average calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation(%) and handling and disposal methods	Whether WtE plant monitored in last 5 years (yes/no if yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, show cause/closure isssued, non-renewal of authorization or any other action taken for non-compliance)
1.	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

WEST BENGAL POLLUTION CONTROL BOARD
(Department of Environment, Government of West Bengal)
Paribesh Bhawan, 10A, Block – LA, Sector III, Bidhannagar
Kolkata – 700 106, Ph.: (033) 2202-3000 Fax : 2202-3099
Website: www.wbpcb.gov.in, Email: net.wbpcb-wb@bangla.gov.in

Memo No.: 128/IS-214/2012(Pt-III) **Date:**16/08/2024

To
The Director & DH (UPC-II)
Central Pollution Control Board
"Parivesh Bhawan"
East Arjun Nagar
New Delhi – 110 032.

Sub: Hon'ble NGT Suo Motu matter O.A. No. 536/2024, pertaining to the order dated 15.05.2024, regarding "Waste to Energy; Smokescreen or Solution?" as published in the Indian Development Review on 27.03.2024, information required – **reg.**

Ref: Your Letter No. CM-13011/125/2024-LAW-HO-CPCB-HO dated 07/08/2024

Madam,

With reference to the subject mentioned above, enclosed please find herewith the information related to Waste to Energy (WtE) plants in West Bengal.
This is for your kind perusal please.

Thanking you,

Yours faithfully,

16.08.2024
Chief Engineer
Waste Management Cell

Encl.: As stated above.

Annexure : II

Information related to WtE plants									
Name of SPCB/PCC:									
S.No.	Name of WtE Plant with address	CTE/CTO/Authorization validity	Capacity of WtE (TPD) & Technology used & product information (gas/power/heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule – II of SWM Rules, 2016	Parameters found non complying the norms	Details of action taken (EC imposed, Show cause/Closure issued, non-renewal of authorization or any other action taken for non-compliance
1.	Kolkata Municipal Corporation Compressed Biogas (CBG) plant at Mouza : Dhapa,P.S.Pragati Maidan,Kolkata-700105.	CTE obtained, CTO under process.	Compressed Bio Gas (CBG) from segregated Municipal Solid Waste with capacity 132 Nm^3/day and Bio-fertilizer : 422 kg/day. Bio Gas is utilized in operating KMC vehicles.	--	--	--	--	--	--
2.	NKDA CBG plant at Action Area - IC,New Town, Kolkata.	--	Capacity of CBG plant: 5TPD.	--	--	--	--	--	--

TAMIL NADU POLLUTION CONTROL BOARD

From
Thiru.R.Kannan,M.Tech.,
Member Secretary,
Tamil Nadu Pollution Control Board,
76, Mount Salai, Guindy,
Chennai – 600059.

To
The Member Secretary,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi -110032.

Lr No. T3/TNPCB/SWM/ Waste to Energy /2024 Dated: 14.08.2024

Sir,

Sub: TNPCB- SWM – Hon'ble NGT O.A.No.536 of 2024 – Information on Waste To Energy Plants requested – Details submitted – Reg.

Ref: CPCB Lr.No.F.No.CM-13011/125/2024-LAW-HO-CPCB-HOCP-25/5/2022-UPC-I-HO-CPCB-HO dated: 07.08.2024.

I invite kind attention to the reference cited, wherein it was requested to submit information on Waste to Energy Plants in the State of Tamil Nadu in the requested format. In this regard it is informed that, there is no Waste to Energy Plants under operation in the State of Tamil Nadu. Hence, the present status of Waste to Energy Plants in the State of Tamil Nadu may be treated as Nil.

This is for your kind information please.

For Member Secretary
14/08/2024

No. 76, MOUNT SALAI, GUINDY, CHENNAI - 600 032.
Tel : 044-22353134 - 139 Fax : 044-22353068
Email : tnpcb-chn@gov.in Web : tnpcb.gov.in

Information related to Waste to Energy Plants									
Name of the SPCB: Tripura State Pollution Control Board									
Sl. No.	Name of the Plant with Address	CTE/CTO/ Authorization Validity	Capacity (TPD) & Technology used & Product Information (gas/power/ heat)	Average Calorific Value of waste received at WtE facilities (Kcal/Kg)	Average bottom ash/ fly ash generation (%) and handling & disposal method	Whether WtE plants monitored in last 5 years (yes/no) If yes, please provide data of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed/ Show Cause/Closure Order etc.)
1.	There is no Waste to Energy Plant/ Unit presently Operational the State of Tripura. However, in the year of 2022-23, a Waste to Energy unit was proposed to be set up in the State at Agartala and Consent to Establish Certificate was also issued by the TSPCB in favour of that Unit. However, till date, no establishment/ construction activities have been started by the said Project Proponent. Name of the said unit is M/s Simoco	Validity of CTE of the proposed plant was upto 29.12.2023.	3 tonns/Day	-	NA	NA	NA	NA	NA

	telecommunications (South Asia) Ltd. Prop: Sri Tapas Saha (Executive Director) Address: Chandinamura, Barjala, Agartala, West Tripura.								

By Speed Post/ Email

DELHI POLLUTION CONTROL COMMITTEE
DEPARTMENT OF ENVIRONMENT, GOVT. OF NCT OF DELHI
B-Block, 3rd FLOOR, DELHI IT PARK, SHASTRI PARK, DELHI-110053
visit us at: https://dpcc.delhigovt.nic.in

F. No. DPCC/WMC-II/SWM/2024/20-21 Dated: 07/01/2025

To,

Ms Divya Sinha
Director & DH, UPC-II,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi-110032.

Sub: Information sought w.r.t. Orders dated 15.05.2024 & 12.11.2024 of Hon'ble NGT in O.A. 536/ 2024.

Madam,

With reference to your email dated 13.12.2024 and letter dated 11.12.2024 on the subject mentioned above, please find enclosed herewith, information sought in the prescribed formats [Format I(a) & I(b)] of CPCB. The same has also been sent to CPCB at Email Id: divyasinha.cpcb@nic.in .

Yours Sincerely,

(D. K. Singh)
Addl. Director, WMC-II

Enclosures: As Above

Copy to:

1. Member Secretary, DPCC

Format I (a)

Information related to WtE Plants

Name of SPCB/PCC: DPCC

S. No.	Name of WtE Plant with Address	CTE/CTO & Authorization under SWM Rules	Capacity of WtE (TPD) & Technology used & product formation (gas/ power / heat)	Average Calorific value of waste received at WtE facility (Kcal/kg)	Average bottom ash/fly ash generation (%) & Handling & disposal methods	Whether WtE plant monitored in last 5 years* (Yes/No) If yes, please provide date of monitoring	Parameters monitored as specified in schedule-II of SWM Rules, 2016	Parameters found non complying the norms	Details of actions taken (EC imposed, Show cause / Closure issued, non-renewal of authorization or any other action taken for non-compliance)
1	Ltd Delhi Waste Processing Company Private Limited, Adjacent to Veterinary Hospital, Behind Ghazipur Office Plant, Ghazipur, Delhi-110096.	CTO valid upto 06.11.2023 Authorization valid upto 31.12.2027	1300 TPD (12 MW) Technology- Capacitive Segall Technology	1250 Kcal/ Kg	Bottom Ash - 2878 MT / Month Fly Ash - 154 MT/Month. Disposal- Ghazipur Dumpsite (to shred MVVA)	Yes (Monthly/Quarterly) 08.09.2023	Yes Some parameters have been made more stringent than prescribed under Schedule-II of SWM Rules, 2016 (Prescribed Standards for Emission from Incineration of Municipal Waste to Energy Plant) in Delhi, as decided in the meeting on 29.01.2019 of CPCB, DPCC & Deptt of Environment, Govt of NCT of Delhi, enclosed)	Nil As per report for monitoring conducted on 04.09.2024)	Total Environmental Compensation(EC) of Rs 20,00,000/- (Rs.Twenty Lakh only) was imposed on 01.10.2020, 12.11.2020 & 17.08.2021 Said amount of EC deposited in DPCC
2	Tehkhand Waste to Electricity Project Limited, Adjacent to DMC Tehkhand Depot, Mas Anandmai Marg, Tehkhand New Delhi-110010.	CTO (Renewal) - Applied on 21.08.2024 (earlier CTO valid upto 06.10.2024) Authorization (Renewal) Applied on 29.08.2024 (earlier Authorization valid upto 04.10.2024)	2000 TPD (24 MW) Technology- RDF based controlled combustion (Reverse-Pushing Type Mechanical Grate Technology) Fuel- Electricity (Power)	1400-2000 Kcal/kg	Bottom Ash- 10-13% of MSW Fly Ash- 1.5-2.5% of MSW. The generated Ash from the WtE Plant is being transported in covered vehicles to RRF Tehkhand / Okhla Dumpsite.	Yes (Monthly and Quarterly) (04.09.2024)		Nil As per report for monitoring conducted on 04.09.2024)	Nil
3	Timarpur - Okhla Waste Management Company Limited, Old Nigam Complex Plot Beyond ONB, Mathura Road, New Delhi-110025	CTO (Renewal) - Applied on 04.09.2024 (earlier CTO valid upto 24.08.2024) Authorization (Renewal) Applied on 29.08.2024 (earlier Authorization valid upto 24.08.2024)	1950 TPD (16 MW) Technology- RDF based controlled combustion (Reverse-Acting Reciprocating Type Mechanical Grate) Fuel- Electricity (Power)	1500-2000 Kcal/kg	Bottom Ash- 10-13% of MSW Fly Ash- 1.5-2.5% of MSW This generated Ash from the WtE Plant is being transported in covered vehicles to RRF Tehkhand / Okhla Dumpsite.	Yes (Monthly and Quarterly) (01.09.2023)		Nil (as per report for monitoring conducted on 03.09.2024)	Total Environmental Compensation (EC) of Rs 10,00,000/- (Rs.Ten Lakh only) was imposed on 17.10.2020 & 17.08.2021 Said amount of EC deposited in DPCC
4	M/s Delhi MSW Solutions Ltd, Block-5, Bawana Project Power Plant New Delhi-110039	CTO valid upto 01.05.2026 Authorization valid upto 01.05.2026	Capacity of WtE 3500 (TPD (24 MW) and RDF Based Power Plant	1300-1650 Kcal/kg	Avg Ash = 24% and Ash material is disposed at Sanitary Landfill within the premises of Integrated MSW Facility at Bawana.	Yes (28.09.2023)		Nil (as per report for monitoring conducted on 29.09.2024)	Total Environmental Compensation(EC) of Rs 25,00,000/- (Rs.Twenty Five Lakh only) was imposed on 03.10.2020 , 27.01.2020 & 17.08.2021 Said amount of EC has been deposited in DPCC

*All the Operational WtE Plants in Delhi are having CEMS in respect of parameters PCL NO, Particulate Matter(PM), SO, CO, Boiler temperature and as per their CC CMG Data for December, 2024, the Plants are meeting the prescribed standards.

Format 1(b)

List of Non-Complying WtE Plants

S. No.	Name of Non-Complying WtE Plants as per monitoring in last 5 years with address	Full details of Non-Compliance	Remarks
1.	East Delhi Waste Processing Company Private Limited, Adjacent to Veterinary Hospital, Behind Ghazipur, IHBA Flats, Ghazipur, Delhi-110096.	• Environmental Compensation(EC) imposed on 05.04.2020 Joint inspection of Waste to Energy Plant at Ghazipur was conducted by officials of CPCB & DPCC and monitoring was also conducted by CPCB laboratory during 8th-10th January, 2019 and 23rd-25th April, 2019 and various deficiencies were observed during the said Joint Inspection and as per Analysis Report of CPCB following parameters were not found meeting the prescribed standards S. No. | Date of Sampling | Parameters | Limit | Measured Value 1. | 09.01.2019 | Loss of Ignition (for Bottom Ash Only) | <5% | 6.31% 2. | 09.01.2019 | Particulate Matter | 30 mg/Nm³ | 458.45 mg/Nm³ 3. | 23.04.2019 | Loss of Ignition (for Bottom Ash Only) | <5% | 7.24% 4. | 23.04.2019 | Particulate Matter | 30 mg/Nm³ | 689.45 mg/Nm³ • Environmental Compensation (EC) imposed on 17.11.2020 As per the Analysis Results of the Monitoring of Stack Emissions conducted by CPCB on 5th - 8th March, 2020 in respect of Waste to Energy Plant at Ghazipur, concentration of Particulate Matter (measured values- 48.4, 51.7 mg/Nm³ against the prescribed standard of 50 mg/Nm³), NOx (measured value - 372.8 mg/Nm³ against the prescribed standard of 300 mg/Nm³) and Lead (Pb) (measured value - 0.412 mg/Nm³ against the prescribed standard of 0.1 mg/Nm³) were found exceeding the permissible limits. Concentration of Cadmium (Cd) in Fly Ash (7.75 mg/l) was exceeding the permissible limit of 1 mg/l as mentioned in the Analysis results of the Monitoring conducted by CPCB on 05.03.2020 in respect of Waste to Energy Plant at Ghazipur. • Environmental Compensation(EC) imposed on 17.08.2021 During the Joint Inspection on 12th-14th October, 2020 conducted by officials of CPCB, DPCC & IIT Delhi, PM, NOx, HCl, Dioxin & Furans in the stack emissions were found exceeding the prescribed limit and Particulate Matter (PM10) in the Ambient Air was not meeting the prescribed standards as mentioned below: Particulate Matter (measured values- 67.7 & 85.1 mg/Nm³ was not meeting the prescribed standard of 50 mg/Nm³), NOx (measured value- 869 mg/Nm³ was not meeting the prescribed standard of 300 mg/Nm³), HCl Measured value- 487 mg/Nm³ was not meeting the prescribed standard of 50 mg/Nm³) and Dioxin and Furans (measured values- 0.27 ngTEq/Nm³ was not meeting the prescribed standard of 0.1 ngTEq/Nm³) monitored by CPCB & Shri Ram Institute for Industrial Research respectively on 13.10.2020 & 14.10.2020 were not within the prescribed standard limits. PM2.5 (measured values - 127 µg/Nm³ & 215 µg/Nm³ was not meeting the prescribed standard of 60 µg/Nm³) and PM10 (measured values - 273 µg/m³ & 480 µg/m³ was not meeting the prescribed standard of 100 µg/Nm³).	
2.	Timarpur-Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025.	• Environmental Compensation(EC) imposed on 12.10.2021 Inspection of Waste to Energy Plant at Okhla was carried out by a team of officials from CPCB, DPCC and IIT Delhi and monitoring of the Stack Emissions and Ambient Air Quality was also conducted by CPCB Laboratory / Shri Ram Institute for Industrial Research during 02th-13th March, 2020. As per the Report of Joint Inspection Team in respect of Waste to Energy Plant at Okhla, Dioxin & Furans (measured value - 0.7213 ngTEq/Nm³) monitored by Shri Ram Institute for Industrial Research on 13.03.2020 were not meeting the prescribed standard of 0.1 ngTEq/Nm³). PM10 and PM25 values during 24 hourly average Ambient Air Quality Monitoring at two locations were not meeting the prescribed standards [Institute Vihar (Location I) - measured value for PM10 was 156 µg/m³ against prescribed standard of 100 µg/m³ & measured value for PM2.5 was 60 µg/m³ against prescribed standard of 60 µg/m³ and STP Okhla (Location II) measured value for PM10 was 164.66 µg/m³ against prescribed standard of 100 µg/m³ & measured value for PM25 was 80 µg/m³ against prescribed standard of 60 µg/m³]	

		• Environmental Compensation(EC)imposed on 17.09.2021 Inspection of Waste to Energy Plant at Okhla was carried out by a team of officials from CPCB and DPCC and monitoring of the Stack Emissions and Ambient Air Quality was also conducted by CPCB Laboratory / Shri Ram Institute for Industrial Research during 21st - 22 nd September, 2020. As per the Report of Joint Inspection Team in respect of Waste to Energy Plant at Okhla, Hawan & Furans (measured value - 0.99 ng/TEq/Nm³ against the prescribed standard of 0.1 ng/TEq/Nm³) and HCl (measured value 198 mg/Nm³ against the prescribed standard of 50 mg/Nm³) monitored by Shri Ram Institute for Industrial Research & CPCB respectively on 21.09.2020 & 22.09.2020 were not meeting the prescribed standard limits. PM2.5 (measured value - 78 µg/m³ against the prescribed standard of 60 µg/m³) was not within the prescribed standard limits.
5.	M/s Delhi MSW Solutions Ltd, Sector-5, Bawana Power plant, New Delhi-110039	• Environmental Compensation(EC)imposed on 03.10.2019 Joint inspection of Waste to Energy Plant at Bawana was conducted by officials of CPCB, DPCC and monitoring was also conducted by CPCB laboratory during 26 to 28 December, 2018, 20th to 21st May, 2019 and 22nd to 23rd August, 2019 and various deficiencies were observed during the said Inspection. As per Analysis Reports of CPCB following parameters were found not meeting the prescribed standards:

S. No	Date of Sampling	Parameters	Limit	Measured Values
1.	26.12.2018 & 27.12.2018	Particulate Matter	50 mg/Nm³	75.8 & 30.7 mg/Nm³
		Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+ their compounds	0.5 mg/Nm³	0.731 mg/Nm³
		Pb	0.1 mg/Nm³	0.431 mg/Nm³
2.	20.05.2019 & 21.05.2019	Particulate Matter	50 mg/Nm³	77.5 & 32.2 mg/Nm³
		Hydrogen Chloride	50 mg/Nm³	54.7 mg/Nm³
		Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+ their compounds	0.5 mg/Nm³	1.563 mg/Nm³
		Pb	0.1 mg/Nm³	0.886 mg/Nm³
		Loss of Ignition (for Bottom Ash Only)	<5%	4.3%
3.	22.08.2019 & 23.08.2019	Particulate Matter	50 mg/Nm³	39.5 & 32.1 mg/Nm³
		Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+ their compounds	0.5 mg/Nm³	0.704 mg/Nm³

• Environmental Compensation(EC)imposed on 27.11.2019
Inspection of Waste to Energy Plant at Bawana was carried out by a team of officials from CPCB & DPCC and Monitoring of the Stack Emission and Ambient Air Quality was also conducted by CPCB Laboratory / Shri Ram Institute for Industrial Research during 25th - 26th February, 2020. Concentration value of Cadmium in the Fly Ash (3.12 mg/l) was exceeding the permissible limit of 1 mg/l as mentioned in the Analysis Results of the Monitoring conducted by CPCB on 25.02.2020 and given in the Joint Inspection Report of September, 2020 in respect of Waste to Energy Plant at Bawana.

Environmental Compensation(EC)imposed on 17.09.2021
Inspection of Waste to Energy Plant at Bawana was carried out by a team of officials from CPCB & DPCC and monitoring of the Stack Emissions and Ambient Air Quality was also conducted by CPCB Laboratory / Shri Ram Institute for Industrial Research during 24-25 September, 2020.
As per the Report of Joint Inspection Team in respect of Waste to Energy Plant at Bawana, Hawan and Furans (measured values- 0.65ngTEq/Nm³ was not meeting the prescribed standard of 0.1 ngTEq/Nm³) monitored by Shri Ram Institute for Industrial Research on 24.09.2020 & 25.09.2020 were not within the prescribed standard limits. PM2.5 (measured value 84 µg/Nm³ was not meeting the prescribed standard of 60 µg/Nm³) and PM10 (measured values 1 151.33 µg/Nm³, 176 µg/Nm³, 190.7 µg/Nm³ & 282.1 µg/Nm³ was not within the prescribed standard limits. TDS (measured value 6744 mg/l was not meeting the prescribed standard of 2100 mg/l) and Chloride (measured value 1564 mg/l) was not meeting the prescribed standard of 600 mg/l) were not found meeting the prescribed standard for leachate.

TELANGANA STATE POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN,A -3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD-500018

Phone:23887500
Fax:040—23815631
Grams:KnlushynNiva

Lr.No.91/TGPCB/MSW/SRPT/2025 Dt.08.01.2025

To
The Additional Director,
Central Pollution Control Board,
PariveshBhavan,C.B.D.Cum-Office
Complex, East Arjun Nagar, Shahdara,
Delhi-110032.

Sir,

Sub : TGPCB — Status of Waste to Energy Plants In State/UT-Information furnished — Reg.

Ref : 1.Mail Received from CPCB Dated:12/12/2024
2.CPCB-Lr.No.F.No.CM-13011/125/2024-Law-HO-CPCB Dated:11/12/2024

* * *

It is to submit that, vide reference 2nd cited, where In was sought the status of Waste to Energy Plants In Telangana State In the prescribed format.

Hence, the status of Waste to Energy Plants In the state of Telangana Is here with furnished In the prescribed format for your kind Information and necessary action.

Yours faithfully,

Sujana Sree

SENIOR ENVIRONMENTAL ENGINEER

Encl:As above

Format 1 (a)

Information related to WtE plants in Telangana State									
Name of SPCB/PCC:									
S.No.	Name of wtE Plant with addre ss	CTE/CTO /Authorizati on Validity	Capacity of WT(TPD) E & Technolo gy used & product (DFWBIED n (gas/ OW4P / heat)	Averag e Calorifi c value of waste receive d at CIE facil W (KC0l/k g)	Average bottom ash/fly ash generati on (%) Handling & disposal methods	Whether WtE plant monitore d in last 5 years (Yes/No) If yes, please provide date of monitori ng	Paramete rS monitore d as specified in schedule- II of SWM Rules, 2016	Paramete rs found non complyin the norms	Details of actions taken (EC Imposed, Show cause/Clos ure issued, non- renewal of authorizati on or any other taken for non compliance
1	M/s. Hyderabad MSW Energy Solution Private Ltd., (by GHMC), Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal District	CFE Exp. 19.01.2022. CFO order dt:15.07.2020 which is valid upto 31.03.2025	19.8 MW	Combustion technology using RDF as fuel to produce steam that in turn produces	370 TPD	Yes	SPM PM10 PM2.5 SO2 NOX Cu Pb	-	-
2	M/s Dundigal Waste 2 Energy Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District	CFE order dt:01.07.2020 CFO order dt:16.06.2023 which is valid upto 31.03.2028	14.5 MW	Combustion technology using RDF as fuel to produce steam that in turn produces	250 TPD	Yes	SPM PM10 PM2.5 SO2 NOX Cu Pb	-	-

I (b)

List of non-complying WtE plant

S.No	Name of Non complying WtE plant as per monitoring In last S years with address	Full details of non-compliance	Remarks
1	-	-	-
2	-	-	-

Sanjay Sree

SENIOR ENVIRONMENTAL ENGINEER

IN THE SUPREME COURT OF INDIA

CIVIL APPEAL NO(S). 13120 OF 2017

IN THE MATTER OF:

RAVINDER CHANANA & ORS. ...APPELLANT(S)

VERSUS

THE STATE OF DELHI, DELHI SECRETARIAT CHIEF SECRETARY & ORS. ...RESPONDENT(S)

AFFIDAVIT IN COMPLIANCE OF THIS HON'BLE COURT'S ORDER DATED 18.09.2024 IN THE AFORESAID MATTER ON BEHALF OF CENTRAL POLLUTION CONTROL BOARD

I, Divya Sinha, D/o H.P. Sinha, Aged 53 currently working as Scientist 'F' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi – 110032, the Respondent No. 6 in the above matter (hereinafter referred to as "CPCB") do hereby solemnly affirm and declare as under:

1. That I, in capacity of Scientist "F" in CPCB, have made myself acquainted with the facts and circumstances of the instant case due to the official capacity as mentioned above and on the basis of available records, I am well versed with the facts and circumstances of the matter and as such competent & authorized to affirm this affidavit on behalf of Respondent No. 6.

NOTARY PUBLIC R.L. Chaudhary N.C.T. of Delhi Regd. No. 1513 GOVT. OF INDIA

2. That, the Answering Respondent, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control) Act, 1974. It performs the functions under The Water (Prevention and Control) Act, 1974, The Air (Prevention and Control) Act, 1981 and The Environment (Protection) Act, 1986.

3. That this Hon'ble Court while hearing IA NO. 189959/2024 - Clarification/Direction) in Civil Appeal No. 13120 of 2017 on 18.09.2024, has directed as follows: (relevant excerpts only)

"...4. The National Green Tribunal in its impugned detailed order on 02.02.2017, had indicated how the project is being developed and the measures that are being taken by the Project Proponent to avoid pollution, based upon improved technology and new mechanism for segregation of waste. Multiple inspections carried out by the National Green Tribunal indicated that the emission from the plant is below the prescribed value and there is no adverse impact on health and the environment.

5. Be that as it may, Mr. Parikh and Mr. Farasat, learned senior counsel would submit that if the expanded capacity is to commence operation, there might be a change of situation. This contention is stoutly resisted not only by the learned counsel for the Project Proponent but also by the counsel for the Municipal Corporation of Delhi.

6. The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks...."

The Copy of order dated 13.12.2024 is annexed herewith and marked as **Annexure R-1**

4. That in compliance of the Hon'ble Supreme Court's order dated

18.09.2024, CPCB issued a letter dated 03.10.2024, requesting DPCC to provide information related to compliance status of Timarpur-Okhla Waste to Energy (hereinafter referred to as 'WtE') Plant, Okhla and the same was provided by DPCC vide letter dated 23.10.2024.

5. That a team of CPCB inspected the WtE at Okhla and conducted sampling/analysis of various sample during 17th Oct and Oct 22-23, 2024.The following monitoring activities were carried out by CPCB during inspection during 17 & 22-23 October, 2024.

- Stack emissions monitoring
- Ambient air quality monitoring
- Ground water monitoring
- Bottom and Fly ash analysis

Stack emission monitoring to assess emissions from the stack was conducted on 23.10.2024. All samples were analysed in CPCB laboratory except parameter- Dioxin & Furans which was analysed by laboratory recognised under Environment (Protection) Act, 1986 - M/S Fare Labs Pvt Ltd. Gurugram since the facility for analysis is currently not operational at CPCB.

6. That, on the basis of the samples so collected an Inspection Report has been prepared containing detailed information about Pollution Control Measures, Waste Water, Management of Fly ash & bottom ash, Operational parameters of the plant, Stack emissions, ambient air quality, ground water , bottom and fly ash analysis and Status of Compliance of Conditions stipulated in Environment Clearance(EC) at WtE plant in Okhla. The Copy of the Inspection Report of the Central

Pollution Control Board is attached herewith and marked as **Annexure R-2.**

Findings & Conclusion

7. That based on the inspection, finding and conclusions of the report are submitted as follows:

a) The processing capacity of the plant is 1950 TPD. The waste received at the plant ranged from 1674.09 to 2048.00 TPD with monthly average of 1729 TPD during October, 2024. The total RDF generation in the plant ranged from 1335.6 to 1351.68 TPD.

b) The segregation sections of the plant were found operational during inspection. It was observed that the segregated waste (RDF) being fed into the boiler.

c) The Consent & Authorization issued by DPCC to WtE has expired in September 2024. The Unit has applied for renewal for the same and its application is currently under process at DPCC.

d) Joint inspection of the WtE Plant at Okhla plant was carried by CPCB & DPCC in compliance of Directions of the Hon'ble NGT (PB) vide order dated 09/10/2017 in OA No. 22 of 2013 (THC), in the matter of Sukhdev Vihar Residents Welfare Association Vs State Of NCT of Delhi. Based on the observed violations during the last joint inspection, Environmental Compensation of Rs 5 Lakhs had been imposed on the Unit by DPCC. CPCB, further as per Directions dated 11.11.2020 of Hon'ble NGT on the matter, issued directions dated 05.04.2021 to the DPCC to ensure

compliance of the WtE plant through regular monitoring and submit the inspection reports as well as the details of action taken by DPCC for any non-compliance observed, to CPCB. DPCC submitted only one inspection report pertaining to the inspection conducted by DPCC on 04.05.2024 in which no non-compliance has been reported. However, it is observed that sampling and monitoring had not been conducted by DPCC during this inspection.

e) Logbooks of MSW processed, disposed and electricity generated are being maintained in the plant.

f) Control room has been setup to control feeding of RDF into boilers for regulation and maintenance of boilers and Air Pollution Control Systems etc. Display board has been installed at the gate of the WTE plant and CAAQMS data is being displayed.

g) Green belt has been developed in & around the Unit. No odour due to waste handling /processing was observed in the Green belt.

h) The temperature in the boilers ranged from 980.89 to 1100 degree Celsius which is meeting the prescribed temperature under Schedule II (C) (g) of SWM Rules, 2016.

i) The leachate generated is collected in the storage pit and carried to leachate treatment plant (LTP). No spillage of leachate observed in the area.

j) Results of Stack emission monitoring conducted during CPCB

inspection on 23.10.2024 indicate that all the monitored parameters in stack emission are within the prescribed limits.

k) OCEMS has been installed. However, sensors for parameters such as HF, CO, TOC & CO_2 have not been provided. Also, the OCEMS reading are not matching with CPCB monitoring data. Hence, OCEMS needs to be properly calibrated on regular basis.

l) PM10 & PM2.5 concentrations in ambient air quality monitoring at both the locations (NDMC building & STP Okhla) exceeded the prescribed limit under NAAQS. Concentration levels of the NO_2 and SO_2 are within the stipulated norms. These measured values of all four parameters are in the range of reported values at 39 CAAQMS installed at various locations in Delhi on the same date.

m) Monitored ground water parameters are within permissible limits of BIS specifications: 2012 for drinking water except iron which was found to be 1.38 mg/L, exceeding the BIS standard (0.3 mg/L, Acceptable limit). As per Central Ground Water Board report entitled "Aquifer mapping & ground water management plan of NCT Delhi", 2016, Concentration of Iron (Fe) has been found to be exceeding the maximum permissible limit at several locations including Northwest, North, Northeast, West, East, Central, Southwest and South districts of NCT, Delhi

n) Bottom ash & fly ash analysis indicates that all the monitored parameters are within the permissible limits except for exceedance of Cadmium in Flyash. The concentration of Cadmium was found at 7.32 mg/L in the fly ash, exceeding the prescribed standard limit of 1 mg/L as per Hazardous and other Wastes (Management &

Transboundary Movement) Rules, 2016. However, in view of the higher Cadmium concentration observed in the flyash, unit may identify the source of cadmium in the flyash and immediately take necessary action to eliminate the same and disposal of flyash may regularly be monitored by DPCC in this regard. Bottom ash generated from the boiler is utilised in brick manufacturing unit located within the WtE premises and the remaining reject is disposed at SLF, Tehkhand. As per stipulated condition in EC dated 15.01.2020, bottom ash is to be utilized for building material & brick manufacturing, however, it is partially utilized (less than 1%) for brick manufacturing. Unit to take necessary action to increase utilization of bottom ash.

o) All conditions in existing EC (issued in 2020) were found to be complied except the following conditions:

- Only less than 1% of total bottom ash generated is being utilized for brick manufacturing. However as per EC dated 15.01.2020, bottom ash to be utilized for building material & brick manufacturing.
- Sensors for monitoring parameters such as HF, CO, TOC & CO_2 have not been provided in the OCEMS. Unit to also provide sensors for these parameters in OCEMS.

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p) No physical/infrastructural upgradation has been observed towards expanded capacity (40 MW) granted vide EC dated 09.01.2023. As informed by the proponent, the Consent to Establish (CTE) for Expansion / Consent to Operate (CTO) has not been applied with the Delhi Pollution Control Committee for the expanded capacity (40 MW) of the plant as on October 17, 22-

23, 2024.

8. That in addition to the aforesaid submissions, it is humbly submitted that CPCB shall abide by any/all orders or directions passed by this Hon'ble Court.

9. That no new facts and no documents which were not pleaded before the courts below have been pleaded in this affidavit.

NOTARY PUBLIC R.L. Chaudhary N.C.T. of Delhi Regd. No. 1513 GOVT. OF INDIA

DEPONENT

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

VERIFICATION

I, the deponent hereinabove, do hereby verify that the contents of this Reply Affidavit which is based on official record and information available in the office are true and correct to the best of my knowledge and belief. Nothing material has been concealed therefrom.

Signed and verified at New Delhi on this 13 DEC 2024 Day of December, 2024.

NOTARY PUBLIC R.L. Chaudhary N.C.T. of Delhi Regd. No. 1513 GOVT. OF INDIA

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA
13 DEC 2024

DEPONENT

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

ITEM NO.11 COURT NO.5 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 13120/2017

RAVINDER CHANANA & ORS. Appellant(s)

VERSUS

THE STATE OF DELHI DELHI
SECRETARIAT CHIEF SECRETARY & ORS. Respondent(s)

([ONLY IA NO. 189959/2024 IN CA 13120/2017 IS LISTED UNDER THIS ITEM]
(IA No. 189959/2024 - CLARIFICATION/DIRECTION)

Date : 18-09-2024 This matter was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE HRISHIKESH ROY
HON'BLE MR. JUSTICE SUDHANSHU DHULIA
HON'BLE MR. JUSTICE S.V.N. BHATTI

For Appellant(s) Mr. Shadan Farasat, Sr. Adv.
Ms. Sanchita Ain, AOR
Mr. Prannv Dhawan, Adv.

Mr. Sanjay Parikh, Sr. Adv.
Mr. Devvrat, Appellant In Person, Adv.
Ms. Harshita Sharma, Adv.
Mr. Devesh Kumar Agnihotri, Adv.
Ms. Charu Sangwan, AOR
Mr. Nitin Jain, Adv.

For Respondent(s) Mrs. Aishwarya Bhati, A.S.G.
Mrs. Swarupama Chaturvedi, Sr. Adv.
Mr. Mukesh Kumar Maroria, AOR
Mr. Ayush Puri, Adv.
Mrs. Sunita Sharma, Adv.
Mrs. Nidhi Khanna, Adv.
Mr. Shlok Chandra, Adv.

Ms. Aishwarya Bhati, A.S.G.
Mr. Gurmeet Singh Makker, AOR
Ms. Sunita Sharma, Adv.
Mr. Ayush Puri, Adv.
Ms. Nidhi Khanna, Adv.
Mr. Shlok Chandra, Adv.
Ms. Ruchi Kohli, Adv.

Mr. Pradeep Misra, AOR

Mr. Daleep Dhyani, Adv.
Mr. Suraj Singh, Adv.

Mr. Avijit Roy, AOR

Mr. Ranjit Kumar, Sr. Adv.
Mr. Nilava Bandyopadhyay, Adv.
Ms. Vijaya Singh, Adv.
Ms. Ankita Sinha, Adv.
Mr. Sahil Kumar Purvey, Adv.
Mr. Prem Prakash, AOR

Ms. Garima Prashad, Adv.
Mr. Sudeep Kumar, AOR
Ms. Manisha, Adv.

Mr. S Wasim A Qadri, Sr. Adv.
Dr. Menaka Guruswamy, Sr. Adv.
Mr. Utkarsh Pratap, Adv.
Ms. Arunima Das, Adv.
Mr. Devadita Das, Adv.
Mr. Ravi Kumar, Adv.
Mr. Achintya Kumar Niyogi, Adv.
Mr. Praveen Swarup, AOR

Mr. Yoginder Handoo, AOR
Mr. Sanjay Kumar Visen, AOR

UPON hearing the counsel the Court made the following

O R D E R

I.A. No. 189959/2024

Heard Mr. Sanjay Parikh and Mr. Shadan Farasat, the learned senior counsel appearing for the petitioners/applicants. Also heard Dr. Menaka Guruswamy, learned senior counsel appearing for the Municipal Corporation of Delhi (Respondent No.2) and Mr. Ranjit Kumar, learned senior counsel appearing for the Project Proponent (Respondent No.9). The Central Pollution Control Board is represented by Mr. Avijit Roy, learned counsel.

2. This pertains to the interim application in respect of the project of respondent no.9. When similar such interim application was filed earlier, on the expansion undertaken by the Waste to

Energy Plant by the respondent no.9, this Court on 05.04.2023 had passed the following order:-

> "1. The Interlocutory Application for impleadment (IA No 40462/2023 is allowed.
> 2. The Interlocutory Applications are to seek a stay on the expansion of the capacity of the Waste to Energy Plant at Okhla from 23 MW to 40 MW.
> 3. Mr Ranjit Kumar, senior counsel appearing on behalf of the Ninth Respondent states that in pursuance of the permission which has been received, the process of expansion and operationalising the plant to the enhanced capacity would take about 18 months.
> 4. In view of the above statement of Mr Ranjit Kumar, it is not necessary to entertain the Interlocutory Applications at the present stage.
> 5. However we have acceded to the request of all the counsel that the Civil Appeal be listed for final disposal at an early date.
> 6. List the Civil Appeal along with IA No 49339 of 2023 on 19 July 2023.
> 7. Any steps which are taken by the concessioner towards implementing the 4 permission for enhancement of the capacity from 23 MW to 40 MW shall be subject to the final result of the appeal and shall not create any equities.
> 8. To facilitate the final disposal of the proceedings, counsel appearing on behalf of the contesting parties shall prepare a common compilation of documentary and other material that is sought to be relied upon.
> 9. Mr Devvrat, counsel for the appellant and Mr Nilava Bandyopadhyay, counsel assisting Mr Ranjit Kumar shall act as nodal counsel to ensure that soft copies of the compilations are prepared and circulated to the Bench and to the counsel appearing on behalf of the contesting parties. The soft copies of the compilations shall also be emailed to cmvc.dyc@gmail.com.
> 10. Parties shall also file brief sets of written submissions by 30 June 2023.
> 11. IA Nos 10266, 40464, and 40945 are accordingly disposed of."

3. As can be seen from above, the expansion was permitted to be made subject to the outcome of the pending Civil Appeal.

4. The National Green Tribunal in its impugned detailed order on 02.02.2017, had indicated how the project is being developed and the measures that are being taken by the Project Proponent to avoid

pollution, based upon improved technology and new mechanism for segregation of waste. Multiple inspections carried out by the National Green Tribunal indicated that the emission from the plant is below the prescribed value and there is no adverse impact on health and the environment.

5. Be that as it may, Mr. Parikh and Mr. Farasat, learned senior counsel would submit that if the expanded capacity is to commence operation, there might be a change of situation. This contention is stoutly resisted not only by the learned counsel for the Project Proponent but also by the counsel for the Municipal Corporation of Delhi.

6. The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks.

(GEETA JOSHI)
SENIOR PERSONAL ASSISTANT

(KAMLESH RAWAT)
ASSISTANT REGISTRAR

Annexure R-2

REPORT

(IN COMPLIANCE TO HON'BLE SUPREME COURT ORDER DATED 18.09.2024 IN CIVIL APPEAL NO. 13120/2017, (IA NO. 189959/2024), RAVINDER CHANANA & ORS VS. THE STATE OF DELHI, DELHI SECRETARIAT CHIEF SECRETARY & ORS.)

CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest & Climate Change)
"Parivesh Bhawan", East Arjun Nagar,
Delhi-110032

December, 2024

CONTENTS

	Annexure I – Copy of Hon'ble SC order dated 18.09.2024	
	Annexure I A- Copy of SWM Rules, 2016	
	Annexure I B- Relevant provisions of SWM Rules, 2016	
	Annexure II- Copy of CPCB letter dated 3.10.2024 to DPCC	
	Annexure III- Copy of DPCC letter dated 23.10.2024 & inspection report dated 04.05.2024	
	Annexure-IIIA- Joint inspection report carried out in 2020	
	Annexure IV- Direction issued by CPCB to DPCC u/s 5 of E(P) Act, 1986 vide dated 05.04.2021	
	Annexure V- Copy of Electricity generation MoU and Sale receipt	
	Annexure-VI- Analysis result of ground water quality	
	Annexure VII- Copy of Compost sale receipt, test report and MoU	
	Annexure VIII- Status of compliance of EC	

1.0 BACKGROUND

Hon'ble Supreme Court vide order dated 18.09.2024 in the matter of Civil Appeal No(s). 13120/2017, *(IA NO. 189959/2024)*, Ravinder Chanana & ors. Vs. The State of Delhi,Delhi Secretariat, Chief Secretary & Ors., directed, inter alia, the following:

Para 6 "The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks"

A copy of Hon'ble SC order is attached as **Annexure I.**

The waste at Waste-to-Energy (WtE) facility is to be managed as per provisions of Solid Waste Management (SWM) Rules, 2016(**Annexure-I A)** and relevant provisions of the Rules are placed at Annexure-**IB.**

2.0 ACTION TAKEN BY CPCB

2.1 Compliance status of WtE Plant, Okhla, as per Delhi Pollution Control Committee (DPCC)

CPCB issued a letter dated 03.10.2024 **(Annexure-II)**, requesting DPCC to provide information related to compliance status of Timarpur-Okhla WtE Plant, Okhla. The same was provided by DPCC vide letter dated 23.10.2024 **(Annexure III).** Status as per the DPCC letter is as given below:

a) **Consent Status:**

Consent to operate under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, and Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, issued by DPCC dated 21.05.2020 has been issued with validity till 24.09.2024 to the Timarpur-Okhla Waste-to-Energy (WTE) plant with a processing capacity of 1950 tons per day and electricity generation capacity of 23 MW.

As informed by DPCC, application for the renewal of Consent to Operate is under process at DPCC.

b) **Authorization Status:**

Authorization was granted by DPCC under SWM Rules,2016 dated May 21, 2020, with validity until September 24, 2024. As informed by DPCC, application for the renewal of authorization is under process at DPCC.

c) National Green Tribunal (NGT) Directions dated 09/10/2017 in OA No. 22 of 2013 (THC) (640/2018)

Joint inspection of the Timarpur-Okhla WTE plant (hereinafter referred as unit) was carried time to time by CPCB & DPCC in compliance of Directions of the Hon'ble NGT (PB) vide order dated 09/10/2017 in OA No. 22 of 2013 (THC), In the matter of Sukhdev Vihar Residents Welfare Association Vs State Of NCT of Delhi. The latest joint inspection was carried out in 2020 and the Report is placed at **Annexure IIIA.** Based on the observed violations, Environmental Compensation (EC) of Rs 5 Lakhs was imposed on the Unit by DPCC.

CPCB, further as per Directions dated 11.11.2020 of Hon'ble NGT, issued directions dated 05.04.2021 **(Annexure IV)** to the DPCC to ensure compliance of the WtE plant through regular monitoring and submit the inspection reports as well as the details of action taken by DPCC for any non-compliance observed, to CPCB. DPCC has submitted only one inspection report pertaining to the Inspection conducted by DPCC on 04.05.2024. A copy of the inspection report is attached in **Annexure III.** No non-compliance has been reported in the inspection report. However, it is to be noted that sampling and monitoring had not been conducted by DPCC during this inspection.

3.0 Inspection Conducted by CPCB

In compliance to Hon'ble Supreme Court direction dated 18.09.2024, CPCB conducted inspection of the Unit during October 17 & 22-23, 2024. The findings of the inspection are provided in subsequent sections:

Waste to Energy Plant ,Okhla		
1	**Name and address of the industry**	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2	**Name of the occupier/contact person**	Mr. Sandeep Dutt Mob. 09958360016 Sandip.dutt@lindalcopolis.com

	Telephhone/email	
3	**Date of inspection / monitoring**	Oct. 17 & 22 - 23, 2024
4	**Installed processing Capacity**	As per DPCC Authorization letter dated 21.05.2020 the unit has capacity to process 1950 Tonnes per day (TPD) MSW for generation of 23 MW power.
5	**Production/Operational status (on date of inspection)**	Operational

3.1 Process Description

The process begins with the arrival of closed compactors carrying MSW at TOWMCL, WTE Plant, which pass through a radioactive sensor and weigh bridge before entering an enclosed storage pit. Bio-culture is applied to degrade organic material, while hot air is circulated to reduce moisture. The stored MSW is then pre-processed, and segregated through magnetic separators, shredders, and ballistic separators into inert, recyclable, compostable materials and refuse-derived fuel (RDF). These fractions are sent to various destinations, including recyclers, composting facilities, and the RDF pit for combustion for power generation.

The process flow diagram of the WtE plant is given in Figure 1.

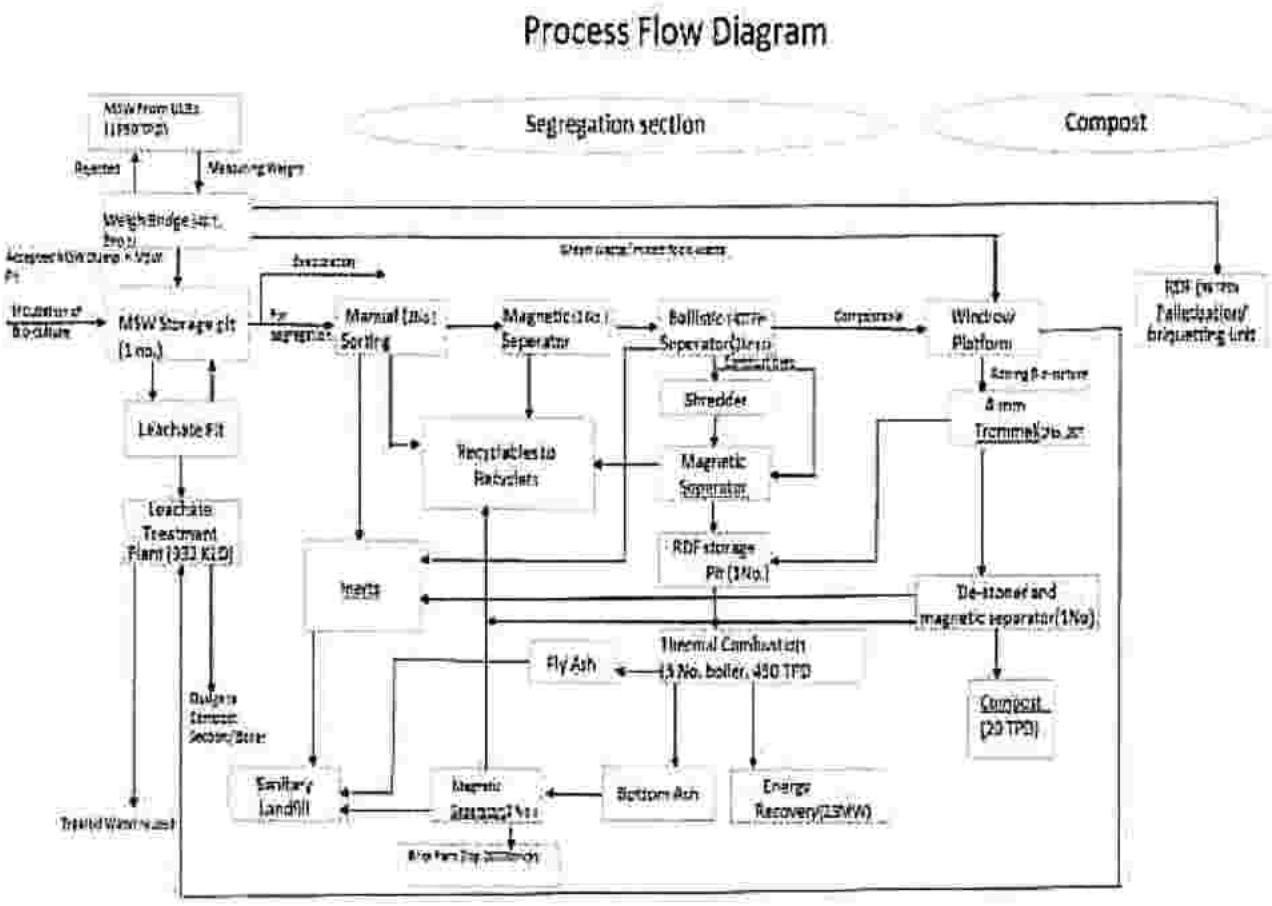

Fig.1 : Process flow diagram of WtE plant

3.2 Pollution Control Measures

(a) Air pollution

The Flue Gas Cleaning System (FGCS) has been installed to control emissions from the boiler. It comprises of the following components:

- Turbo-Reactor
- Baghouse Filter
- Sorbent Handling System
- End Product Handling System

(b) Waste Water

The leachate generated from MSW storage area is treated in leachate treatment plant (LTP). The designed capacity of leachate treatment plant is 332 KLD. However , if leachate generation is up to 100 KLD, in the plant, it is routed through multi effect evaporators (MEE) for treatment . Concentrated part of MEE is used as a fuel for boiler and condensate

recovered from leachate is reused into the process. In case of over 100 KLD leachate generation, leachate is routed to reverse osmosis (RO) system and the reject water is sent to MEE, while permeate is reused in the plant.

(c) **Management of Fly ash & bottom ash**

- Fly ash generated from the boiler is disposed to the Sanitary Landfill (SLF) managed by the Municipal Corporation of Delhi (MCD) at Tehkhand.
- Bottom ash generated from the boiler is partly utilized (less than 1%) in brick manufacturing unit located within the WtE premises and the remaining reject is disposed at SLF, Tehkhand .

3.3 Operational parameters

(a) Waste Feed: The processing capacity of the plant is 1950 TPD. The unsegregated waste received at the plant ranged from 1674.09 to 2048.00 TPD with monthly average of 1729 TPD during October 2024. After segregation, the Refuse Derived Fuel (RDF) generation in the plant ranged from 1335.6 to 1351.68 TPD which is fed to the boiler

(b) Temperature: Three boilers are connected to the single stack of height 60 meters and diameter 4.5 meter. The temperature in the boilers ranged from 980.89 to 1100 degree Celsius which is meeting the prescribed temperature under Schedule II (C) (g) of the SWM Rules, 2016 .

(c) Power generation: The Power generation capacity of the plant is 23 MW. During inspection, it was observed that the Power generation of the unit was ranged between 20.60 and 21.90 MW. The details are given in the Table 1. As per the information provided by the proponent, the electricity generated is being sold to BSES Rajdhani Power Ltd, Tata Power Delhi Distribution Ltd and Adarsh stainless Pvt. Ltd. The sale receipt and MoU with the parties for sale of electricity is attached as **Annexure V.**

Table 1: Details of Power generation in the Unit

Date	Power Generation (MW)		
	Time	**Minimum**	**Maximum**
17.10.2024	6 AM to 6 PM	**20.74**	**21.86**
22.10.2024	6 AM to 6 PM	**20.60**	**21.90**
23.10.2024	6 AM to 6 PM	**20.80**	**21.60**

(d) Lime and Hydrophobic Organic carbon dosing

The unit is dosing approx. 171 Kg/h Ca(OH)2 and 51 Kg/h Hydrophobic Organic carbon (HOC) in the Turbo Reactor of Flu Gas Cleaning System (FGCS) installed in the plant. The details of dosing are given in Table 2.

Table 2: Lime and HOC dosing per hour

Date	FGCS 1		FGCS 2		FGCS 3	
	Lime (Kg/h)	HOC (Kg/h)	Lime (Kg/h)	HOC (Kg/h)	Lime (Kg/h)	HOC (Kg/h)
17.10.2024	171.3	51.1	171.2	51.2	171.2	51.2
22.10.2024	171.08	51.01	171.02	51.15	171.23	51.06
23.10.2024	171.12	51.02	170.97	51.16	171.18	51.03

3.4 Monitoring results

The following monitoring activities were carried out by CPCB during inspection during 17 & 22-23 October, 2024

(a) Stack emissions monitoring
(b) Ambient air quality monitoring
(c) Ground water monitoring
(d) Bottom and Fly ash analysis

(a) Stack Emission monitoring

Stack emission monitoring to assess emissions from the stack was conducted on 23.10.2024 **(Figure 2)**. All samples were analysed in CPCB laboratory except parameter- Dioxin & Furans which was analysed by laboratory recognised under Environment (Protection) Act, 1986 - M/S Fare Labs Pvt Ltd. Gurugram since the facility for analysis is currently not operational at CPCB. The analysis results of stack monitoring conducted are given in **Table 3.**

Fig. 2: *Stack emission monitoring for source emission at WtE Okhla plant*

Table 3: Analysis results of the stack emission monitoring of the WtE plant Okhla carried on 23/10/2024

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Measured values Stack (Corrected to 11% O2 as per SWM Rules)
1.	PM	CPCB	30 mg/Nm^3	50 mg/Nm^3	5.92, 4.0
2.	Hydrogen Chloride		50 mg/Nm^3	50 mg/Nm^3	6.53
3.	SO2		100	200 mg/Nm^3	BDL, BDL
			mg/Nm^3		
4.	NOX (NO and NO2		350 mg/Nm^3	400 mg/Nm^3	13.83, 15.75
	expressed as NO2)				
5.	CO		100 mg/Nm^3	100 mg/Nm^3	20
6.	HF		0.5 mg/Nm^3	4 mg/Nm^3	0.21

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Measured values Stack (Corrected to 11% O2 as per SWM Rules)
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm^3	0.5 mg/Nm^3	0.023
8.	Cd + Th +their compounds		0.05 mg/Nm^3	0.05 mg/Nm^3	Cadmium (BDL) Th (Not analysed)
9.	Pb		0.1 mg/Nm^3	Not prescribed	0.00083
10.	Hg		0.02 mg/Nm^3	0.05 mg/Nm^3	BDL
11.	TOC		20 mg/ Nm^3	20 mg/ Nm^3	1.79, 2.39
12.	Total Dioxin & Furans	Third party lab (M/s Fare Labs Gurugram	0.1 ng TEQ/Nm^2	0.1 ng TEQ/Nm^2	0.062

Stack emission monitoring results indicate that all the monitored parameters are within the prescribed limits.

(b) Ambient air quality monitoring

- Ambient Air Quality monitoring was conducted during 22.10.2024 to 23.10.2024 at two nearby locations namely NDMC building and Okhla STP, approximately at 100 m & 200m **(Figure 3)** located in NNW and SSE direction of the WtE respectively. The analysis results of the same are tabulated in **Table 4**. The photograph is given at Figure 3

Fig. 3: Ambient air quality monitoring at STP Okhla & NDMC building (near Okhla WtE plant)

Table 4: 24 hours average values of ambient air quality monitoring, 22-23 Oct ,2024

Parameters	Prescribed Standard* (In µg/m³)	Measured values (In µg/m³)		
		NDMC Building Location-I	STP Okhla Location-II	Range of values reported at 39 CAAQMS stations nearby WTe plant October 22-23, 2024
PM10	100	446	356	240-584
PM2.5	60	265	247	107-302
NO2	80	56	40	9-214
SO2	80	7	10	3.2-63

** National Ambient Air Quality Standards (NAAQS)*

It is observed that the PM10 & PM2.5 concentrations in ambient air quality monitoring at both the locations (NDMC building & STP Okhla) exceed the prescribed limit under

NAAQS. Concentration levels of the NO2 & SO2 are within the stipulated norms.
It may also be noted that reported values of 39 CAAQMS installed at various locations in Delhi also shows higher concentration PM10 & PM2.5 in the range of 240-584 µg/m3 and 107 - 302 µg/m3 respectively on such days of monitoring.

(c) Ground Water Quality Monitoring :

The ground water sample was collected from NDMC building located in the vicinity of WtE plant on 22/10/2024.The analysis results of ground water quality is placed at **Annexure-VI.** The photograph of ground water sampling is given in Figure 4 :

Fig 4: Ground water Sampling Location

It is observed that the monitored ground water parameters are within permissible limits of BIS specifications 10500: 2012 for drinking water except iron which was found to be 1.38 mg/L, exceeding the BIS standard (0.3 mg/L, Acceptable limit).
Further, as per Central Ground Water Board (CGWB) report entitled "Aquifer mapping & ground water management plan of NCT Delhi", 2016, Concentration of Iron (Fe) has been found in range of 0.113 mg/l to 8.69 mg/l and exceeding the maximum permissible limit at several locations. Iron in excess of maximum permissible limit has been reported from Northwest, North, Northeast, West, East, Central, Southwest and **South districts of NCT**, Delhi.

(d) Bottom ash & fly ash monitoring :

The samples of bottom and fly ash stored at the unit were collected on 17.10.2024. Photograph of sample collection is given in Figure 5.0: The collected samples of bottom ash and fly ash were analyzed and analysis results are tabulated in **Table 5.**

Fig.5: Bottom Ash and Fly Ash Sampling

Table 5: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values (mg/l)	
17.10.2020	*Loss on Ignition (for Bottom ash only)	<5%*	1.76%	
			Bottom Ash	**Fly Ash**
	Arsenic	5 mg/l**	BDL	0.115
	Cadmium	1 mg/l**	0.18	7.32
	Chromium	5 mg/l**	0.199	0.284
	Manganese	10 mg/l**	2.293	0.632
	Lead	5 mg/l**	0.462	1.214
	Selenium	1 mg/l**	BDL	0.022
	Copper	25 mg/l**	2.102	4.228
	Nickel	20 mg/l**	0.097	0.048
	Zinc	250 mg/l**	6.531	8.201
	Cobalt	80 mg/l**	0.059	0.012
	Vanadium	24 mg/l**	0.06	0.073
	Antimony	15 mg/l**	0.084	0.816

**As per Schedule II (Part C of SWM Rules 2016)*

***Concentration Limit to categorize as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 notified under*

Environment (Protection) Act, 1986.

- As per analysis results of loss on ignition (LoI) in Bottom Ash is 1.76% which is less than 5% as stipulated under Schedule II of SWM Rules, 2016.
- The concentration of monitored heavy metals such as Arsenic, Chromium, Manganese, Lead, Selenium, Copper, Nickel, Zinc, Cobalt, Vanadium, and Antimony, in both bottom ash & fly ash were found to be not exceeding the prescribed limits to qualify as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016. However, the concentration of Cadmium was found at 7.32 mg/L in the fly ash, exceeding the said prescribed standard limit of 1 mg/L.

3.5 Other observations

(a) Characterization of Waste received at WtE Okhla

As per information provided by the project proponent, the approximate composition of solid waste fractions received at the unit during the month of October 2024 is given in Table 6:

Table 6: Characterization of Waste received at WtE Okhla

SN	Components (MT))	Approx Quantity in TPD	Percentage of intake MSW
1	Compostable fractions	140	8.10
2	RDF	1230	71.14
3	Inert	195	11.28
4	Leachate	90	5.20
5	Evaporation & Other losses	74	4.28
	Total	**1729**	**100**

It is observed that the major portion of waste received at the facility consists of RDF which is 71.14% used for incineration at WtE Plant.

(b) Composting

As per information provided, the mixed waste received at the unit (approx. 1729 TPD) consist of approximately 8.1% (140 TPD) of organic fraction. The photograph at composting facility is given in Figure 6:

Fig.6: Compost Storage area

The daily compost generated ranged from 18.26 to 19.43 TPD, however, only 0.67 TPD is sold to New Delhi Municipal Council (NDMC) by the unit. Copy of MoU, Sale receipt & Test reports is attached as **Annexure VII.**

During the inspection, it was observed that compost was stored in an enclosed area. No odour was observed in this area.

(c) Green belt development:

Inside the plant premises, green cover comprising plants such as Jasmine, Harshingar, Champa, Neem, and Pipal have been planted. As informed by the unit, green cover has also been provided in nearby areas Haji Colony, Sarita Vihar, and Jasola Village, in public spaces such as parks, schools, and roadsides. Photographs of the green cover are given in Figure 7 & 8:

No odour due to waste handling /processing was observed in the Green belt in and around the WtE Plant

Fig.7: Greenery inside the premise

Fig. 8: Plantation outside the plant

3.6 Status of Compliance of Conditions stipulated in Environment Clearance(EC)

It is observed that conditions stipulated in existing EC (issued in 2020) have been complied with except for the following conditions:

i. Bottom ash to be utilized for building material & brick manufacturing as per EC dated 15.01.2020. However, only less than 1% of total bottom ash generated is being utilized for brick manufacturing

ii. Sensors for monitoring parameters such as HF, CO, TOC & CO_2 have not been provided in the Online Continuous Emission Monitoring System (OCEMS).

It is further observed that no physical/infrastructural upgradation has been done towards expanded capacity (40 MW) granted vide EC dated 09.01.2023 Further, the Consent to Establish (CTE) for Expansion / Consent to Operate (CTO) has also not been applied with the Delhi Pollution Control Committee for the expanded capacity (40 MW) of the plant.

Detailed status of compliance of conditions stipulated in Environment Clearance(EC) is placed at **Annexure VIII.**

4.0 Findings & Conclusions

a) The processing capacity of the plant is 1950 TPD. The waste received at the plant ranged from 1674.09 to 2048.00 TPD with monthly average of 1729 TPD during October, 2024. The total RDF generation in the plant ranged from 1335.6 to 1351.68 TPD.

b) The segregation sections of the plant were found operational during inspection. It was observed that the segregated waste (RDF) being fed into the boiler.

c) The Consent & Authorization issued by DPCC to WtE has expired in September 2024. The Unit has applied for renewal for the same and its application is currently under process at DPCC.

d) Joint Inspection of the WtE Plant at Okhla plant was carried by CPCB & DPCC in compliance of Directions of the Hon'ble NGT (PB) vide order dated 09/10/2017 in OA No. 22 of 2013 (THC), In the matter of Sukhdev Vihar

Residents Welfare Association Vs State Of NCT of Delhi, Based on the observed violations during the last joint inspection, Environmental Compensation of Rs 5 Lakhs had been imposed on the Unit by DPCC. CPCB, further as per Directions dated 11.11.2020 of Hon'ble NGT on the matter, issued directions dated 05.04.2021 to the DPCC to ensure compliance of the WtE plant through regular monitoring and submit the inspection reports as well as the details of action taken by DPCC for any non-compliance observed, to CPCB. DPCC submitted only one inspection report pertaining to the inspection conducted by DPCC on 04.05.2024 in which no non-compliance has been reported. However, it is observed that sampling and monitoring had not been conducted by DPCC during this inspection.

e) Logbooks of MSW processed, disposed and electricity generated are being maintained in the plant.

f) Control room has been setup to control feeding of RDF into boilers for regulation and maintenance of boilers and Air Pollution Control Systems etc. Display board has been installed at the gate of the WTE plant and CAAQMS data is being displayed

g) Green belt has been developed in & around the Unit. No odour due to waste handling /processing was observed in the Green belt.

h) The temperature in the boilers ranged from 980.89 to 1100 degree Celsius which is meeting the prescribed temperature under Schedule II (C) (g) of SWM Rules, 2016.

i) The leachate generated is collected in the storage pit and carried to leachate treatment plant (LTP). No spillage of leachate observed in the area.

j) Results of Stack emission monitoring conducted during CPCB inspection on 23.10.2024 indicate that all the monitored parameters in stack emission are within the

prescribed limits.

k) OCEMS has been installed. However, sensors for parameters such as HF, CO, TOC & CO_2 have not been provided. Also, the OCEMS reading are not matching with CPCB monitoring data, Hence, OCEMS needs to be properly calibrated on regular basis.

l) PM10 & PM2.5 concentrations in ambient air quality monitoring at both the locations (NDMC building & STP Okhla) exceeded the prescribed limit under NAAQS. Concentration levels of the NO_2 and SO_2 are within the stipulated norms. These measured values of all four parameters are in the range of reported values at 39 CAAQMS installed at various locations in Delhi on the same date.

m) Monitored ground water parameters are within permissible limits of BIS specifications: 2012 for drinking water except iron which was found to be 1.38 mg/L, exceeding the BIS standard (0.3 mg/L, Acceptable limit). As per Central Ground Water Board report entitled "Aquifer mapping & ground water management plan of NCT Delhi", 2016, Concentration of Iron (Fe) has been found to be exceeding the maximum permissible limit at several locations including Northwest, North, Northeast, West, East, Central, Southwest and South districts of NCT, Delhi

n) Bottom ash & fly ash analysis indicates that all the monitored parameters are within the permissible limits except for exceedance of Cadmium in Flyash. The concentration of Cadmium was found at 7.32 mg/L in the fly ash, exceeding the prescribed standard limit of 1 mg/L as per Hazardous and other Wastes (Management & Transboundary Movement) Rules, 2016. However, in view of the higher Cadmium concentration observed in the flyash, unit may identify the source of cadmium in the flyash and immediately take necessary action to eliminate the same and disposal of flyash may regularly be monitored by DPCC in this regard. Bottom

ash generated from the boiler is utilised in brick manufacturing unit located within the WtE premises and the remaining reject is disposed at SLF, Tehkhand. As per stipulated condition in EC dated 15.01.2020, bottom ash is to be utilized for building material & brick manufacturing, however, it is partially utilized (less than 1%) for brick manufacturing. Unit to take necessary action to increase utilization of bottom ash.

o) All conditions in existing EC (issued in 2020) were found to be complied except the following conditions:

- Only less than 1% of total bottom ash generated is being utilized for brick manufacturing. However as per EC dated 15.01.2020, bottom ash to be utilized for building material & brick manufacturing.
- Sensors for monitoring parameters such as HF, CO, TOC & CO_2 have not been provided in the OCEMS. Unit to also provide sensors for these parameters in OCEMS.

p) No physical/infrastructural upgradation has been observed towards expanded capacity (40 MW) granted vide EC dated 09.01.2023. As informed by the proponent, the Consent to Establish (CTE) for Expansion / Consent to Operate (CTO) has not been applied with the Delhi Pollution Control Committee for the expanded capacity (40 MW) of the plant as on October 17, 22-23, 2024.

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

(Divya Sinha)
Scientist 'F'
Central Pollution Control Board

ITEM NO.11 COURT NO.5 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 13120/2017

RAVINDER CHANANA & ORS. Appellant(s)

VERSUS

THE STATE OF DELHI DELHI
SECRETARIAT CHIEF SECRETARY & ORS. Respondent(s)

([ONLY IA NO. 189959/2024 IN CA 13120/2017 IS LISTED UNDER THIS ITEM]
(IA No. 189959/2024 - CLARIFICATION/DIRECTION)

Date : 18-09-2024 This matter was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE HRISHIKESH ROY
HON'BLE MR. JUSTICE SUDHANSHU DHULIA
HON'BLE MR. JUSTICE S.V.N. BHATTI

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Mr. Devvrat, Appellant In Person, Adv.
Ms. Harshita Sharma, Adv.
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Mr. Ayush Puri, Adv.
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Mr. Shlok Chandra, Adv.

Ms. Aishwarya Bhati, A.S.G.
Mr. Gurmeet Singh Makker, AOR
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Mr. Shlok Chandra, Adv.
Ms. Ruchi Kohli, Adv.

Mr. Pradeep Misra, AOR

Mr. Daleep Dhyani, Adv.
Mr. Suraj Singh, Adv.

Mr. Avijit Roy, AOR

Mr. Ranjit Kumar, Sr. Adv.
Mr. Nilava Bandyopadhyay, Adv.
Ms. Vijaya Singh, Adv.
Ms. Ankita Sinha, Adv.
Mr. Sahil Kumar Purvey, Adv.
Mr. Prem Prakash, AOR

Ms. Garima Prashad, Adv.
Mr. Sudeep Kumar, AOR
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Mr. S Wasim A Qadri, Sr. Adv.
Dr. Menaka Guruswamy, Sr. Adv.
Mr. Utkarsh Pratap, Adv.
Ms. Arunima Das, Adv.
Mr. Devadita Das, Adv.
Mr. Ravi Kumar, Adv.
Mr. Achintya Kumar Niyogi, Adv.
Mr. Praveen Swarup, AOR

Mr. Yoginder Handoo, AOR
Mr. Sanjay Kumar Visen, AOR

UPON hearing the counsel the Court made the following

O R D E R

I.A. No. 189959/2024

Heard Mr. Sanjay Parikh and Mr. Shadan Farasat, the learned senior counsel appearing for the petitioners/applicants. Also heard Dr. Menaka Guruswamy, learned senior counsel appearing for the Municipal Corporation of Delhi (Respondent No.2) and Mr. Ranjit Kumar, learned senior counsel appearing for the Project Proponent (Respondent No.9). The Central Pollution Control Board is represented by Mr. Avijit Roy, learned counsel.

2. This pertains to the interim application in respect of the project of respondent no.9. When similar such interim application was filed earlier, on the expansion undertaken by the Waste to

Energy Plant by the respondent no.9, this Court on 05.04.2023 had passed the following order:-

> "1. The Interlocutory Application for impleadment (IA No 40462/2023 is allowed.
> 2. The Interlocutory Applications are to seek a stay on the expansion of the capacity of the Waste to Energy Plant at Okhla from 23 MW to 40 MW.
> 3. Mr Ranjit Kumar, senior counsel appearing on behalf of the Ninth Respondent states that in pursuance of the permission which has been received, the process of expansion and operationalising the plant to the enhanced capacity would take about 18 months.
> 4. In view of the above statement of Mr Ranjit Kumar, it is not necessary to entertain the Interlocutory Applications at the present stage.
> 5. However we have acceded to the request of all the counsel that the Civil Appeal be listed for final disposal at an early date.
> 6. List the Civil Appeal along with IA No 49339 of 2023 on 19 July 2023.
> 7. Any steps which are taken by the concessioner towards implementing the 4 permission for enhancement of the capacity from 23 MW to 40 MW shall be subject to the final result of the appeal and shall not create any equities.
> 8. To facilitate the final disposal of the proceedings, counsel appearing on behalf of the contesting parties shall prepare a common compilation of documentary and other material that is sought to be relied upon.
> 9. Mr Devvrat, counsel for the appellant and Mr Nilava Bandyopadhyay, counsel assisting Mr Ranjit Kumar shall act as nodal counsel to ensure that soft copies of the compilations are prepared and circulated to the Bench and to the counsel appearing on behalf of the contesting parties. The soft copies of the compilations shall also be emailed to cmvc.dyc@gmail.com.
> 10. Parties shall also file brief sets of written submissions by 30 June 2023.
> 11. IA Nos 10266, 40464, and 40945 are accordingly disposed of."

3. As can be seen from above, the expansion was permitted to be made subject to the outcome of the pending Civil Appeal.

4. The National Green Tribunal in its impugned detailed order on 02.02.2017, had indicated how the project is being developed and the measures that are being taken by the Project Proponent to avoid

pollution, based upon improved technology and new mechanism for segregation of waste. Multiple inspections carried out by the National Green Tribunal indicated that the emission from the plant is below the prescribed value and there is no adverse impact on health and the environment.

5. Be that as it may, Mr. Parikh and Mr. Farasat, learned senior counsel would submit that if the expanded capacity is to commence operation, there might be a change of situation. This contention is stoutly resisted not only by the learned counsel for the Project Proponent but also by the counsel for the Municipal Corporation of Delhi.

6. The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks.

(GEETA JOSHI)
SENIOR PERSONAL ASSISTANT

(KAMLESH RAWAT)
ASSISTANT REGISTRAR

रजिस्टी सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

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अधिसूचना

नई दिल्ली, 8 अप्रैल, 2016

का.आ. 1357(अ).—ठोस अपशिष्ट प्रबंधन नियम, 2015 का प्ररूप भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. सा.का.नि.451 (अ) तारीख 3 जून, 2015 को भारत के राजपत्र भाग II, खंड-3, उप खंड (i) में उसी तारीख को प्रकाशित किए गए थे, जिसमें उनसे प्रभावित होने वाले संभावित व्यक्तियों से नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम 2000 को अधिक्रांत करते हुए उक्त अधिसूचना के द्वारा ठोस अपशिष्ट प्रबंधन नियम, 2015 के प्रकाशन की तारीख से साठ दिनों की अवधि की समाप्ति से पूर्व आक्षेप और सुझाव आमंत्रित किए थे;

उक्त राजपत्र की प्रतियां जनता को तारीख 3 जून, 2015 को उपलब्ध कराई गई थीं;

निर्धारित अवधि के भीतर उक्त प्रारूप नियमों पर प्राप्त आपत्तियों तथा टिप्पणियों पर केन्द्र सरकार द्वारा सम्यक रूप से विचार किया गया था;

पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3, 6 और 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए और नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन) नियम, 2000, उन बातों के सिवाय अधिक्रांत करते हुए जिन्हें ऐसे अधिक्रमणों से पहले किया गया है या किए जाने का लोप किया गया है, केन्द्रीय सरकार ठोस अपशिष्टों का प्रबंधन करने के लिए निम्नलिखित नियम बनाती है अर्थात् :

1. संक्षिप्त नाम और प्रारंभ.–

(1) इन नियमों का संक्षिप्त नाम ठोस अपशिष्ट प्रबंधन नियम, 2016 है।

(2) ये राजपत्र में इनके प्रकाशन की तारीख से प्रवृत्त होंगे।

2. लागू होना- ये नियम प्रत्येक शहरी स्थानीय निकाय, शहरी क्षेत्रों के विस्तार, भारत के महारजिस्ट्रार और जनगणना आयुक्त द्वारा यथा घोषित जनगणना नगरों, अधिसूचित क्षेत्रों, अधिसूचित औद्योगिक नगरी, भारतीय रेल के अधीन क्षेत्रों, विमानपत्तनों, वायुयान बेस, बंदरगाह और हारबर, रक्षा स्थापनाओं, विशेष आर्थिक जोन, राज्य और केन्द्रीय सरकारों के संगठनों, समय-समय पर क्रमशः राज्य सरकार द्वारा यथा अधिसूचित तीर्थ, धार्मिक तथा ऐतिहासिक महत्व के स्थानों और जिसमें औद्योगिक अपशिष्ट, परिसंकटमय अपशिष्ट, परिसंकटमय रसायन, जैव चिकित्सा अपशिष्ट, ई-अपशिष्ट, सीस-अम्ल बैटरियां और रेडियो सक्रिय अपशिष्ट पर्यावरण (संरक्षण) अधिनियम, 1986 के अधीन अलग से बनाए गए नियमों के अधीन आते हैं, के सिवाय प्रत्येक घरेलू, सांस्थानिक, वाणिज्यिक और किसी भी अन्य गैर-आवासीय ठोस अपशिष्ट जनित्रों पर लागू होंगे:-

3. परिभाषाएं- (1) इन नियमों में, जब तक कि संदर्भ से अन्यथा अपेक्षित न हो,- (1) **"वातजीवी कम्पोस्टीकरण"** से ऑक्सीजन की विद्यमानता में जैविक पदार्थ का सूक्ष्म जैवकीय विघटन अंतर्वलित कोई नियंत्रित प्रक्रिया अभिप्रेत है;

2. **"अवायुजीवी उपचारण"** से ऑक्सीजन के अभाव में जैविक पदार्थ का सूक्ष्म जैवकीय विघटन अंतर्वलित कोई नियंत्रित प्रक्रिया अभिप्रेत है;

3. **"प्राधिकार"** से यथास्थिति, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा किसी प्रसुविधा के प्रचालक या शहरी स्थानीय प्राधिकरण या ठोस अपशिष्ट के प्रसंस्करण और निपटान के उत्तरदायी किसी अन्य अभिकरण को दी गई अनुज्ञा अभिप्रेत है;

4. **"जैविक रूप से अपघटित अपशिष्ट"** से कोई ऐसी कार्बनिक सामग्री अभिप्रेत है जिसे सूक्ष्म जीव द्वारा सरलतर दिकाऊ सम्मिश्रण में निम्नीकृत किया जा सकता है;

5. **"जैविक मिथेनीकरण"** से ऐसी प्रक्रिया अभिप्रेत है जिसमें मिथेन से भरपूर जैव गैस का उत्पादन करने के लिए सूक्ष्मजीवी क्रिया द्वारा कार्बनिक पदार्थ का इंजाइमी-अपघटन को अपरिहार्य बनाता है;

6. **"ब्रांडस्वामी"** से कोई व्यक्ति या कंपनी अभिप्रेत है जो किसी रजिस्ट्रीकृत ब्रांड लेबल के अधीन कोई वाणिज्यिक विक्रय करता है;

7. **"मध्यवर्ती परिक्षेत्र"** से ऐसा विकास रहित परिक्षेत्र अभिप्रेत है जिसमें 5 टीपीडी से अधिक की संस्थापित क्षमता वाली ठोस अपशिष्ट प्रसंस्करण तथा निपटान सुविधा के चारों ओर अनुरक्षित किया जाएगा। इसे ठोस अपशिष्ट के प्रसंस्करण तथा निपटान संबंधी सुविधा के लिए आवंटित कुल क्षेत्र के भीतर अनुरक्षित किया जाएगा;

8. **'भारी मात्रा में अपशिष्ट उत्पादक"** से अभिप्रेत है और इसके अंतर्गत औसतन 100 कि.ग्रा. प्रतिदिन की दर से अधिक अपशिष्ट उत्पादित करते हैं तथा इनमें केन्द्रीय सरकार के विभागों अथवा उपक्रमों, राज्य सरकार के विभागों या उपक्रमों, स्थानीय निकायों, सार्वजनिक या प्राइवेट सेक्टर की कंपनियों, अस्पतालों, नर्सिंग होम, स्कूलों, कॉलेजों, विश्वविद्यालयों, अन्य शैक्षिक संस्थाओं, छात्रावासों, होटलों, वाणिज्यिक स्थापनाओं, बाजारों, पूजा स्थलों, स्टेडियमों और खेल परिसरों द्वारा अधिकृत भवन भी है;

9. **"उप-विधि"** से स्थानीय निकाय, जनगणना शहर और अधिसूचित क्षेत्र टाउनशिप द्वारा, अपने अधिकारिता वाले क्षेत्र में इन नियमों को प्रभावी ढंग से कार्यान्वित करने को सुविधाजनक बनाने के लिए, अधिसूचित नियामक ढांचा अभिप्रेत है;

10. **"जनगणना नगर"** से भारत के महारजिस्ट्रार और जनगणना आयुक्त द्वारा यथा परिभाषित शहरी क्षेत्र अभिप्रेत है;

11. **"ज्वलनशील अपशिष्ट"** से प्लास्टिक, काष्ठ लुगदी आदि जैसी क्लोरोनीकृत सामग्री को छोड़कर गैर-जैवअवक्रमणीय, गैर-पुनर्चक्रणीय, गैर-पुन:उपभोज्य, गैर-परिसंकटमय ठोस अपशिष्ट अभिप्रेत है जिनका 1500 किलो कैलोरी प्रति कि.ग्रा. से न्यूनतम कैलोरिफिक मान हो;

12. **"कम्पोस्टीकरण"** से जैविक पदार्थ का सूक्ष्मजीवी अपघटन अंतर्वलित की एक ऐसी नियंत्रित प्रक्रिया अभिप्रेत है;

13. **"ठेकेदार"** से ऐसा व्यक्ति या फर्म अभिप्रेत है जो कोई सेवा करने के लिए या सेवा प्रदाता प्राधिकारी के लिए कार्य करने के लिए सामग्री या श्रम प्रदान करने की संविदा करता है या करती है;

14. **"सह प्रसंस्करण"** से प्राकृतिक खनिज संसाधनों और औद्योगिक प्रक्रियाओं में जीवाश्म ईंधनों को प्रतिस्थापित करने या उन्हें अनुपूरित, दोनों को करने के लिए कच्ची सामग्री के रूप में या ऊर्जा के स्रोत के रूप में 1500 किलो कैलोरी से अधिक कैलोरिफिक मूल्य वाले गैर-जैव अवक्रमणीय और गैर-पुनर्चक्रणीय ठोस अपशिष्ट का उपयोग अभिप्रेत है;

15. **"विकेंद्रित प्रसंस्करण"** से जैव अवक्रमणीय अपशिष्ट के प्रसंस्करण को अधिकतम करने के लिए बिखरी हुई सुविधाओं की स्थापना और उत्पादन के स्रोत से निकटतम पुनर्चक्रण योग्य सामग्रियों की प्रतिप्राप्ति करना अभिप्रेत है ताकि प्रसंस्करण या निपटान के लिए अपशिष्ट का न्यूनतम परिवहन करना पड़े;

16. **"निपटान"** से भूजल, सतही जल, परिवेशी वायु के संदूषण तथा पशुओं या पक्षियों के आकर्षण को रोकने के लिए अनुसूची 1 में यथा विनिर्दिष्ट भूमि पर प्रसंस्करण के उपरांत अवशिष्ट ठोस अपशिष्ट और निष्क्रिय गली का कूड़ा, करकट और सतही नाले की गाद का अंतिम तथा सुरक्षित निपटान अभिप्रेत है;

17. **"घरेलू परिसंकटमय अपशिष्ट"** से घरेलू स्तर पर उत्पन्न संक्रामक अपशिष्टों जैसे फेंके हुए पेंट के ड्रम, कीटनाशी के डिब्बे, सीएफएल बल्ब, ट्यूब लाइटें, अवधि समाप्त औषधियां, टूटे हुई पारा वाले थर्मामीटर, प्रयुक्त बैटरियां, प्रयुक्त सूइयां, तथा सिरिंज और संदूषित पट्टियां आदि अभिप्रेत हैं;

18. **"द्वार-द्वार संग्रहण"** में घरों, दुकानों, वाणिज्यिक प्रतिष्ठानों, कार्यालयों, संस्थागत या किसी अन्य गैर आवासीय परिसरों से द्वार तक जाकर ठोस अपशिष्ट का संग्रहण करना और जिसके अंतर्गत किसी आवासीय सोसायटी, बहुमंजिले भवन या अपार्टमेंट, बड़े आवासीय, वाणिज्यिक या संस्थागत कॉम्प्लैक्स या परिसरों में भूतल पर प्रवेश द्वार या किसी अभिहित स्थल से ठोस अपशिष्ट का संग्रहण करना भी अभिप्रेत है;

19. **"शुष्क अपशिष्ट"** से जैव-निम्नीकरण अपशिष्ट और निष्क्रिय गली का कूड़ा-करकट से भिन्न अपशिष्ट अभिप्रेत है और जिसके अंतर्गत पुनर्चक्रणीय अपशिष्ट, गैर पुनर्चक्रणीय अपशिष्ट, दाह्य अपशिष्ट और स्वास्थ्यकर नैपकिन और डायपर आदि अपशिष्ट भी है;

20. **"क्षेपण स्थल"** से जिसका स्वास्थ्यकर भूमिभरण के लिए सिद्धांतों को पालन किए बिना ठोस अपशिष्ट के निपटान के लिए शहरी स्थानीय निकाय द्वारा उपयोग की गई कोई भूमि अभिप्रेत है;

21. **"विस्तारित उत्पादक दायित्व"** से पैकेजिंग उत्पादों के जीवन काल के अंत तक पर्यावरण की दृष्टि से अनुकूल प्रबंधन के लिए, पैकेजिंग उत्पादों जैसे प्लास्टिक, टिन, कांच और कॉरूगेटेड बक्सों इत्यादि के किसी उत्पादक के उत्तरदायित्व अभिप्रेत है;

22. **"सुविधा"** से ऐसा कोई स्थापत्त अभिप्रेत है जिसमें ठोस अपशिष्ट प्रबंध प्रक्रियाएं अर्थात् पृथक्करण पुनःप्राप्ति, भंडारण, संग्रहण, पुनर्चक्रण, प्रसंस्करण, उपचार या सुरक्षित निपटान किया जाता है;

23. **"जुर्माना"** से इन नियमों तथा/अथवा उप-विधियों के निदेशों के अनुपालन के लिए उपविधियों के अधीन अपशिष्ट जनित्रों या अपशिष्ट प्रसंस्करण के प्रचालकों और निपटान सुविधाओं पर लगाए गए जुर्माना अभिप्रेत है;

24. **"प्ररूप"** से इन नियमों में उपावद्ध प्ररूप अभिप्रेत है;

25. **"ग्रहस्तन"** के अंतर्गत ठोस अपशिष्टों की छंटाई, पृथक्करण, सामग्री की पुन:प्राप्ति, संग्रहण, गौण भंडारण, काटना, गट्ठा बनाना, दलन, लदाई, उतराई, परिवहन, प्रसंस्करण तथा निपटान से संबंधित सभी क्रियाकलाप भी हैं;

26. **"निष्क्रिय"** से ऐसा अपशिष्ट अभिप्रेत है जो जैव अपघटनीय, पुन:चक्रणीय या दाह्य नहीं है, गली की सफाई तथा सतही नालियों से निकाली गई धूल तथा गाद भी हैं;

27. **"भस्मीकरण"** से उच्च तापमान पर अपशिष्ट सामग्रियों को तापीय रूप से निम्नीकृत करने के लिए ठोस अपशिष्ट का जलाना या दहन अंतर्वलित इंजीनियरीकृत प्रक्रिया अभिप्रेत है;

28. **"अनौपचारिक अपशिष्ट संग्राहक"** के अंतर्गत व्यष्टि, संगम ऐसे या अपशिष्ट व्यापारी सम्मिलित है जो पुनर्चक्रणीय सामग्रियों की छंटाई, विक्रय और खरीद से अंतर्वलित है;

29. **"निक्षालितक"** से ऐसा द्रव अभिप्रेत है जो ठोस अपशिष्ट के माध्यम से या अन्य माध्यम से रिसता है जिसमें उसमें घुली हुई या निलंबित सामग्री का सत्व है;

30. **"स्थानीय निकाय"** से अभिप्रेत इन नियमों के प्रयोजन के लिए और जिसके अंतर्गत म्युनिसपल कॉरपोरेशन, नगर निगम, म्युनिसपल कौंसिल, नगरपालिका, नगरपालिका परिषद, म्युनिसपल बोर्ड, नगर पंचायत, और टाउन पंचायत, जनगणना नगर, अधिसूचित क्षेत्र और भारत के विभिन्न राज्यों और संघ राज्य क्षेत्रों में औद्योगिक नगरी चाहे उसका कोई भी नाम से पुकारा जाए, भी है;

31. **"सामग्री पुनर्प्राप्ति सुविधा (एमआरएफ)"** से ऐसी सुविधा अभिप्रेत है जहां गैर कंपोस्टीय ठोस अपशिष्ट को स्थानीय निकाय या नियम 2 में वर्णित कोई अन्य अस्तित्व या इसमें से किसी के द्वारा प्राधिकृत कोई व्यक्ति या अभिकरण जो अपशिष्ट को प्रसंस्करण या निपटान के लिए उसे परिदान या देने के पूर्व इस प्रयोजन के लिए स्थानीय निकाय या नियम 2 में वर्णित अस्तित्व द्वारा नियोजित अपशिष्ट चुनने वाले, अनौपचारिक पुनर्चक्रणकर्ता या कोई अन्य नियोजित कार्यबल को प्राधिकृत अनौपचारिक सेक्टर द्वारा अपशिष्ट के विभिन्न संघटकों से पृथक्करण, छंटाई या पुनर्चक्रण योग्य की पुनर्प्राप्ति की प्रसुविधा है;

32. **"अजैविक निम्नीकरण योग्य अपशिष्ट"** से कोई ऐसा अपशिष्ट अभिप्रेत है जिसका सूक्ष्म जीव द्वारा सरलतर स्थायी यौगिक में निम्नीकरण नहीं किया जा सकता है;

33. **"सुविधा का प्रचालक"** से ऐसा व्यक्ति या अस्तित्व अभिप्रेत है जो ऐसे ठोस अपशिष्ट के ग्रहस्तन के लिए सुविधा का स्वामी है या प्रचालित करता है जिसके अंतर्गत स्थानीय निकाय और स्थानीय निकाय द्वारा नियुक्त कोई अन्य अस्तित्व या अभिकरण भी है;

34. **"प्राथमिक संग्रहण"** से पृथक्कृत ठोस अपशिष्ट को उसके उत्पादन के स्रोत जिसके अंतर्गत घर, दुकानें, कार्यालय और कोई अन्य गैर आवासीय परिसर भी हैं से या किसी संग्रहण बिंदु या शहरी स्थानीय निकाय द्वारा विनिर्दिष्ट किसी अन्य अवस्थान से संगृहीत करना, उठाना या हटाना अभिप्रेत है;

35. **"प्रसंस्करण"** से कोई वैज्ञानिक प्रक्रिया जिसके द्वारा ठोस अपशिष्ट को पुन: उपयोग, पुन: चक्रित या नए उत्पादों में परिवर्तित करने के प्रयोजन के लिए हथालित करना अभिप्रेत है;

36. **"पुनर्चक्रण"** से पृथक्कृत ठोस अपशिष्ट को अजैव निम्नीकृत नए पदार्थ या उत्पाद या नए उत्पादों का उत्पादन करने के लिए कच्ची सामग्री के रूप में परिवर्तित करने की प्रक्रिया अभिप्रेत है, जिसमें मूल उत्पादों को समरूप किया जा सकेगा या नहीं किया जा सकेगा;

37. **"पुनर्विकास"** से जहां विद्यमान भवन और अन्य अवसंरचनाएं जीर्णशीर्ण हो गई हैं वहां उसी स्थल पर पुरानी आवासीय या वाणिज्यिक भवनों का पुनर्निर्माण अभिप्रेत है;

38. **"कचरा व्युत्पन्न ईंधन (आरडीएफ)"** से ठोस अपशिष्ट, जैसे प्लास्टिक, काष्ठ, लुगदी या कार्बनिक अपशिष्ट, क्लोरीनीकृत पदार्थों से भिन्न ठोस अपशिष्ट को सुखाकर वातरत, निर्जलीकरण और संहनन द्वारा गुटिका या रोल के रूप में उत्पादित दाह्य अपशिष्ट प्रभाजी से व्युत्पन्न ईंधन अभिप्रेत है;

39. **"अवशिष्ट ठोस अपशिष्ट"** से और उसके अंतर्गत ऐसी ठोस अपशिष्ट प्रसंस्करण सुविधाओं, जो पुनर्चक्रण या अतिरिक्त प्रसंस्करण के लिए उपयुक्त नहीं है, से प्राप्त अपशिष्ट और अस्वीकृत भी अभिप्रेत है;

40. **"स्वास्थ्यकर भूमिभरण"** से अवशिष्ट ठोस अपशिष्ट के अंतिम और सुरक्षित निपटान और भूजल, सतही जल या क्षणभंगुर वायु धूल, हवा से उड़ा हुआ कूड़ाकरकट, दुर्गंध, अग्नि परिसंकट, पशुओं का खतरा, पक्षियों का खतरा, नाशकजीव, कृंतकनाशी, ग्रीनहाउस गैस उत्सर्जन, सतत जैव प्रदूषणकारी तत्व प्रावण्य अस्थिरता तथा अपरदन के प्रदूषण के प्रति संरक्षात्मक उपायों सहित प्रकल्पित सुविधा में भूमि पर निष्क्रिय अपशिष्ट अभिप्रेत है;

41. **"स्वास्थ्यकर अपशिष्ट"** से प्रयोग किए गए डायपर, स्वास्थ्यकार तौलिए या नैपकिन, टैम्पोन, कन्डोम, इनकंटीनेंस शीट और कोई अन्य समरूप अपशिष्ट से मिलकर बना अपशिष्ट अभिप्रेत है;

42. **"अनुसूची"** से इन नियमों से उपाबद्ध अनुसूची अभिप्रेत है;

43. **"गौण भंडारण"** से प्रसंस्करण या निपटान सुविधा को अपशिष्ट के आगे परिवहन के लिए गौण भंडारण डिपो या एमआरएफ या आधानों पर संग्रहण के पश्चात ठोस अपशिष्ट का अस्थायी संदूषक अभिप्रेत है;

44. **"पृथक्करण"** से ठोस अपशिष्ट के विभिन्न संघटकों अर्थात जैविक निम्नीकरण अपशिष्ट जिसके अंतर्गत कृषि और दुग्धपालन अपशिष्ट अजैविक निम्नीकरण अपशिष्ट जिसके अंतर्गत पुनःचक्रणयोग्य अपशिष्ट, गैर पुनःचक्रणयोग्य दाह्य योग्य अपशिष्ट, स्वास्थ्यकर अपशिष्ट और गैर चक्रण योग्य कूड़ाकरकट अपशिष्ट, घरेलू परिसंकटमय अपशिष्ट तथा संनिर्माण और विध्वंस अपशिष्ट भी है, की छंटाई और पृथक भंडारण अभिप्रेत है;

45. **"सेवा प्रदाता"** से जल, मलवहन, विद्युत, टेलीफोन, सड़क, जल निकास आदि अभिप्रेत है;

46. **"ठोस अपशिष्ट"** से ठोस या अर्द्धठोस परंतु अपशिष्ट अभिप्रेत है और इसके अंतर्गत स्थानीय प्राधिकरण और नियम 2 में वर्णित अन्य अस्तित्व के अधीन क्षेत्र में उत्पन्न स्वास्थ्यकर अपशिष्ट, वाणिज्यिक अपशिष्ट, सांस्थानिक अपशिष्ट, खानपान और बाजार अपशिष्ट तथा अन्य गैर–आवासीय अपशिष्ट, गली की सफाई, सतह नालियों से हटाई गई या एकत्रित गाद, उद्यान कृषि अपशिष्ट, कृषि और डेयरी अपशिष्ट, औद्योगिक अपशिष्ट को छोड़कर उपचारित जैव चिकित्सक अपशिष्ट और ई-अपशिष्ट, बैटरी अपशिष्ट, रेडियो सक्रिय अपशिष्ट भी अभिप्रेत है;

47. **"छंटाई करना"** से मिश्रित अपशिष्ट से पुनःचक्रणयोग्य विभिन्न संघटकों और प्रवर्गों जैसे कागज, प्लास्टिक, गत्ता, धातु, कांच आदि को समुचित पुनःचक्रण सुविधा में पृथक करना अभिप्रेत है;

48. **"स्थिरीकरण"** से जैव निम्नीकरण अपशिष्ट को जैवीय अपघटन की स्थायी अवस्था में परिवर्तित करना अभिप्रेत है जहां वह निक्षालन या अरुचिकर सुगंध उत्पन्न नहीं करता है और कृषि भूमि, भू-कटाव नियंत्रण तथा भूमि उपचार के लिए उपयुक्त है;

49. **"मार्गविक्रेता"** से किसी गली, लेन, पार्श्व पथ, पैदल पथ, खड़ंजा, सार्वजनिक उद्यान या किसी अन्य सार्वजनिक स्थान या प्राइवेट क्षेत्र, अस्थायी रूप से निर्मित संरचना या स्थान से स्थान घूमकर साधारण जनता को दैनिक उपयोग के वस्तु, माल, सौदा, खाद्य मद या वाणिज्यिक वस्तु के विक्रय करने या उन्हें एक स्थान से दूसरे स्थान तक स्थानांतरित करने में लगे व्यक्ति अभिप्रेत हैं जिसके अंतर्गत फेरीवाला, पैकार, आवादकर तथा ऐसी सभी अन्य समानार्थी पद जो स्थानीय या विनिर्दिष्ट क्षेत्र में हो सकते हैं, भी है और "मार्ग विक्रय" शब्दों को उनके व्याकरणिक रूप भेदों और सजातीय पदों का अर्थ तदनुकूल किया जाएगा;

50. **"बख्शीश फीस"** से स्थानीय प्राधिकरण या राज्य सरकार द्वारा प्राधिकृत कोई राज्य अभिकरण द्वारा कोई फीस या समर्थन मूल्य अभिप्रेत है जो ठोस अपशिष्ट प्रसंस्करण सुविधा के ग्राही या प्रचालक या भूमिभरण पर ठोस अपशिष्ट के निपटान के लिए अवधारित संदाय है;

51. **"अंतरण स्थल"** से संग्रह क्षेत्रों से ठोस अपशिष्ट प्राप्त करने को सृजित सुविधा और अपशिष्ट प्रसंस्करण और/या निपटान सुविधा को आच्छादित यानों या आधानों में वही मात्रा में परिवहन अभिप्रेत है;

52. **"परिवहन"** से ठोस अपशिष्ट चाहे वह या तो उपचारित आंशिक उपचारित या अनुपचारित को एक स्थान से दूसरे स्थान पर किसी पर्यावरणीय रूप से युक्ति युक्त रीति में विशिष्ट रूप से अभिहित और आच्छादित परिवहन प्रणाली जैसे दुर्गंध, खुला कचरा और घृणित दशा को रोकने के लिए प्रवहन अभिप्रेत है;

53. **"उपचार"** से किसी अपशिष्ट के भौतिक, रासायनिक या जैविक लक्षणों या संघटन में रूपांतरण की अभिहित पद्धति, तकनीक या प्रक्रिया अभिप्रेत है जिससे उसके आयतन और क्षितिकारक क्षमता को कम करना है;

54. **"उपयोक्ता फीस"** से ठोस अपशिष्ट संग्रहण, परिवहन प्रसंस्करण और निपटान सेवाओं को उपलब्ध कराने की कुल या आंशिक लागत को प्राप्त करने में अपशिष्ट जनित पर स्थानीय निकाय और नियम 2 में वर्णित किसी अस्तित्व द्वारा अधिरोपित फीस अभिप्रेत है;

55. **"कृमि कम्पोस्ट बनाना"** से केचुओं का प्रयोग करते हुए कम्पोस्ट में सपरिवर्तित करने की जैव निम्नीकरण प्रक्रिया अभिप्रेत है;

56. **"अपशिष्ट जनित्र"** से और इसके अंतर्गत सम्मिलित से, रेल तथा रक्षा स्थापनाओं सहित प्रत्येक व्यक्ति या व्यक्तियों का समूह या प्रत्येक आवासीय परिसर तथा गैर आवासीय स्थापनाएं भी है, जो ठोस अपशिष्ट उत्पन्न करते हैं, अभिप्रेत है;

57. **"अपशिष्ट की क्रमबद्धता"** से ऐसा प्राथमिकता क्रम अभिप्रेत है जिसके अनुसार ठोस अपशिष्ट का प्रबंधन निवारण, कटौती, पुनःउपयोग, पुनर्चक्रण, पुनः प्राप्ति और निपटान पर बल देकर किया जाना चाहिए जिसमें निवारण को सर्वाधिक प्राथमिकता और भू-भरण में निपटान को न्यूनतम वरीयता का विकल्प होगा;

58. **"अपशिष्ट चुनने वाला"** से ऐसा व्यक्ति या व्यक्तियों का समूह अभिप्रेत है जो अपशिष्ट उत्पादन के स्रोत से पुनः उपयोजनीय तथा पुनर्चक्रण योग्य ठोस अपशिष्ट के संग्रहण और साथ ही पुनर्चक्रकों को उनकी आजीविका अर्जित करने के लिए सीधे या उनके मध्यवर्तियों के माध्यम से विक्रय के लिए सामग्रियों, डिब्बों, प्रसंस्करण तथा अपशिष्ट निपटान सुविधाओं से अपशिष्ट को उठाने में औपचारिक रूप से लगे हुए हैं;

(2) इसमें प्रयुक्त जिन शब्दों और पदों का अर्थ परिभाषित नहीं किया गया है, परंतु जो पर्यावरण (संरक्षण) अधिनियम 1986, जल (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1974 जल (प्रदूषण निवारण और नियंत्रण) उपकर अधिनियम 1977 तथा वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 में परिभाषित है, के अर्थ होंगे जो संबंधित अधिनियमों में हैं।

4. अपशिष्ट उत्पन्नकर्ताओं के कर्तव्य. प्रत्येक अपशिष्ट उत्पन्नकर्ता,-

(क) उनके द्वारा उत्पन्न किए गए अपशिष्ट को पृथक्कृत और तीन पृथक धाराओं अर्थात जैव निम्नीकरणयोग्य, गैर निम्नीकरणयोग्य और घरेलू परिसंकटमय अपशिष्ट के तीन अलग-अलग डिब्बों में भंडारित करेगा और समय-समय पर स्थानीय प्राधिकरणों द्वारा निदेश या अधिसूचना के अनुसार पृथक किए गए अपशिष्टों को प्राधिकृत अपशिष्ट चुनने वालों या अपशिष्ट संग्रहकर्ताओं को सौंपेगा;

(ख) प्रयोग किए गए स्वास्थ्यकर अपशिष्ट जैसे डायपरों और स्वास्थ्यकर पैडों आदि इन उत्पादों के निर्माताओं या ब्रांड स्वामियों द्वारा उपलब्ध कराई गई थैली में या स्थानीय प्राधिकारियों द्वारा यथा निर्देशित उपयुक्त लपेटन सामग्री में शुष्क अपशिष्ट या अजैविक निम्नीकरण अपशिष्ट के लिए बनाए गए डिब्बे में उसे डालेगा;

(ग) संनिर्माण और विध्वंस अपशिष्ट को पृथक रूप से अपने ही परिसर में भंडारित करेगा, जब कभी वह उत्पन्न होता हो, और उसे संनिर्माण और विध्वंस अपशिष्ट नियम, 2016 के अनुसार निपटान करेगा; और

(घ) अपने परिसर से उत्पन्न कृषि उद्यान अपशिष्ट और उद्यान अपशिष्ट को अपने ही परिसर में पृथक रूप से भंडारित करेगा और समय समय पर स्थानीय निकाय द्वारा निदेशानुसार इसका निपटान करेगा;

(2) कोई अपशिष्ट जनित्र उसके द्वारा उत्पन्न अपशिष्ट को गली, खुले सार्वजनिक स्थानों, नाली या जलाशयों में न फेंकेगा, न जलाएगा और न गाड़ेगा;

(3) सभी अपशिष्ट उत्पन्नकर्ता ऐसी उपयोक्ता फीस का संदाय करेंगे जो ठोस अपशिष्ट प्रबंधन के लिए स्थानीय निकायों की उपविधियों में विनिर्दिष्ट किया जाए;

(4) कोई व्यक्ति अग्रिम रूप से कम से कम तीन कार्य दिवस पूर्व स्थानीय निकाय को सूचित किए बिना किसी गैर अनुज्ञप्ति वाले स्थान पर एक सौ व्यक्तियों से अधिक का ऐसा कोई आयोजन या समारोह आयोजित नहीं करेगा। ऐसा व्यक्ति या ऐसे आयोजन का आयोजक स्रोत पर अपशिष्ट के पृथक्करण की व्यवस्था करेगा और पृथक्कृत अपशिष्ट को स्थानीय निकाय द्वारा अभिहित अपशिष्ट चुनने वाले को या अपशिष्ट संग्रहण अभिकरण को सौंपेगा;

(5) प्रत्येक मार्ग विक्रेता अपने कार्यकलाप के दौरान उत्पन्न अपशिष्ट जैसेकि खाद्य अपशिष्ट प्रयोज्य (डिस्पोजेबल) प्लेटों, कपों, डिब्बों, रैपरों, नारियल के छिलकों, शेष बचे भोजन, सब्जियों, फलों आदि के लिए उपयुक्त पात्र रखेगा और ऐसे अपशिष्ट को स्थानीय प्राधिकरण द्वारा यथा अधिसूचित अपशिष्ट भंडारण डिपो या पात्र या वाहन में डालेगा;

(6) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष से अंदर सभी आवास कल्याण और बाजार संघ स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर पृथक करने, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रहण करने में सहायता और पुनर्चक्रणीय सामग्री को प्राधिकृत अपशिष्ट उठाने वालों अथवा प्राधिकृत पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव-अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित, उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरण द्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को दिया जाएगा;

(7) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष के अंदर 5,000 वर्ग मीटर से अधिक क्षेत्रफल वाले सभी गेटेड समुदाय और संस्थान स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर ही पृथक करना, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रहण करने में सहायता करना तथा पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित, उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरण द्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को सौंप दिया जाएगा;

(8) इन नियमों के अधिसूचित होने की तारीख से एक वर्ष के अंदर सभी होटल और रेस्टोरेंट स्थानीय प्राधिकरण की भागीदारी में इन नियमों में यथा विहित जनित्रों द्वारा अपशिष्ट को स्रोत पर पृथक करना, पृथक किए गए अपशिष्ट को अलग-अलग पात्रों में संग्रह करने में सहायता करना तथा पुनर्चक्रणीय सामग्री को प्राधिकृत अपशिष्ट उठाने वालों अथवा प्राधिकृत

पुनर्चक्रकों को सौंपना सुनिश्चित करेंगे। जैव-अवक्रमणीय अपशिष्ट का जहां तक संभव होगा परिसर के अंदर संसाधित उपचारित और कंपोस्ट करके अथवा बायोमिथानेशन के जरिए निपटान किया जाएगा। शेष अपशिष्ट स्थानीय प्राधिकरणद्वारा यथा निर्देशित अपशिष्ट संग्रहकर्ताओं या अभिकरण को दिया जाएगा।

5. पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के कर्तव्य.- (1) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय देश में इन नियमों के अनुपालन की मॉनीटरी के लिए उत्तरदायी होगा। यह सचिव, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अध्यक्षता के अधीन केन्द्रीय मॉनीटरी समिति का गठन करेगा, जिसमें निम्नलिखित अधिकारी शामिल होंगे जो संयुक्त सचिव या सलाहकार की पंक्ति से निम्न के नहीं होंगे अर्थात् :

(1) शहरी विकास मंत्रालय

(2) ग्रामीण विकास मंत्रालय

(3) रसायन एवं उर्वरक मंत्रालय

(4) कृषि मंत्रालय

(5) केंद्रीय प्रदूषण नियंत्रण बोर्ड

(6) तीन राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति, चक्राणुक्रम द्वारा

(7) तीन राज्य सरकारों के शहरी विकास विभाग, चक्राणुक्रम द्वारा

(8) दो राज्य सरकारों के ग्रामीण विकास विभाग, चक्राणुक्रम द्वारा

(9) तीन शहरी स्थानीय निकाय, चक्राणुक्रम द्वारा

(10) दो जनगणना (सेंसस) शहर, चक्राणुक्रम द्वारा

(11) एफ्आईसीसीआई, सीआईआई

(12) दो विषय विशेषज्ञ

2. इस केन्द्रीय मानीटरी समिति की बैठक इन नियमों के अनुपालन का मॉनीटर करने और पुनर्विलोकन करने के लिए एक वर्ष में कम से कम एक बार होगी। पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय दो विशेषज्ञों को, यदि आवश्यक हो, सहयोजित कर सकेगा। समिति का प्रत्येक तीन वर्ष में नवीकरण किया जाएगा।

6. शहरी विकास मंत्रालय के कर्तव्य.- (1) शहरी विकास मंत्रालय राज्य सरकारों तथा संघ राज्य क्षेत्र के प्रशासनों के साथ निम्नलिखित के लिए समन्वय करेगा, -

(क) ठोस अपशिष्ट प्रबंधन व्यवहारों को सुधारने के लिए राज्यों तथा स्थानीय निकायों द्वारा किए गए उपायों तथा मंत्रालय और बाह्य अभिकरणों द्वारा वित्त पोषित ठोस अपशिष्ट प्रबंधन परियोजनाओं के निष्पादन का वर्ष में कम से कम एक बार आवधिक पुनर्विलोकन करेगा तथा सुधारात्मक उपाय करने पर सलाह देगा;

(ख) इन नियमों की अधिसूचना की तारीख से छह मास के भीतर पणधारियों के साथ परामर्श से ठोस अपशिष्ट प्रबंधन पर राष्ट्रीय नीति तथा रणनीति तैयार करना, जिसके अंतर्गत अपशिष्ट से ऊर्जा की नीति भी है;

(ग) राष्ट्रीय ठोस अपशिष्ट प्रबंधन नीति और राष्ट्रीय शहरी स्वच्छता नीति पर आधारित ठोस प्रबंध के संबंध में राज्य नीति और रणनीति को तैयार करने में राज्यों तथा संघ राज्य क्षेत्रों का मार्गदर्शन करना और उन्हें सुकर बनाना;

(घ) ठोस अपशिष्ट प्रबंध सेक्टर में अनुसंधान और विकास को प्रोत्साहन देना तथा राज्यों और स्थानीय निकायों के लिए सूचना का प्रसार करना;

(ङ) स्थानीय निकायों और अन्य पणधारियों को प्रशिक्षण देना और उनका क्षमता निर्माण करना; और

(च) समय सीमाओं और मानकों को सुकर बनाने के लिए ठोस अपशिष्ट प्रबंधन पर राज्यों, संघ राज्य क्षेत्रों और स्थानीय निकायों को तकनीकी मार्गदर्शी सिद्धांत तथा परियोजना विल्ल प्रदान करना;

7. उर्वरक विभाग, रसायन और उर्वरक मंत्रालय के कर्त्तव्य.- (1) उर्वरक विभाग समुचित क्रियाविधि के माध्यम से, -

(क) नगर कम्पोस्ट के बाजार विकास में सहायता उपलब्ध कराएगा; और

(ख) कंपनियों को विपणन के लिए इस सीमा तक उपलब्ध कराना कि उर्वरक कंपनियों द्वारा 3 से 4 थैले: 6 से 7 थैले के अनुपात में रासायनिक उर्वरकों के साथ कम्पोस्ट के सह विपणन का संवर्धन सुनिश्चित हो।

8. कृषि मंत्रालय, भारत सरकार के कर्तव्य :- कृषि मंत्रालय समुचित तंत्र के माध्यम से.-

(क) कंपोस्ट के विनिर्माण एवं बिक्री के लिए उर्वरक नियंत्रण आदेश को लचीलापन प्रदान करेगा;

(ख) कृषि भूमि पर कंपोस्ट के उपयोग को बढ़ावा देगा;

(ग) स्थानीय प्राधिकारियों या उनकी प्राधिकृत एजेंसियों द्वारा उत्पादित कंपोस्ट की गुणता जांच के लिए प्रयोगशालाएं स्थापित करेगा;

(घ) कंपोस्ट की गुणता बनाए रखने और कृषि भूमि पर कंपोस्ट का उपयोग करते समय कंपोस्ट की तुलना में रासायनिक उर्वरकों के उपयोग के अनुपात के लिए समुचित मार्गदर्शक सिद्धांत जारी करेगा।

9. विद्युत मंत्रालय के कर्तव्य.- विद्युत मंत्रालय समुचित तंत्र के माध्यम से :- (क) ठोस अपशिष्ट पर आधारित अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों से उत्पादित विद्युत के लिए टैरिफ या प्रभार निर्धारित करेगा;

(ख) ऐसे अपशिष्ट से उत्पन्न विद्युत की खरीद को वितरण कंपनियों द्वारा ऊर्जा संयंत्रों के लिए अनिवार्य बनाएगा।

10. नवीन और नवीकरणीय ऊर्जा स्रोत मंत्रालय के कर्तव्य.- नवीन और नवीकरणीय ऊर्जा स्रोत मंत्रालय समुचित तंत्र के माध्यम से :-

(क) अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों के लिए अवसंरचना सृजन को सुविधाजनक बनाएगा; और

(ख) ऐसे अपशिष्ट से ऊर्जा पैदा करने वाले संयंत्रों के लिए समुचित सब्सिडी या प्रोत्साहन प्रदान करेगा।

11. राज्यों और संघ राज्य क्षेत्रों में शहरी विकास के प्रभारी सचिव के कर्तव्य.-

(1) राज्य या संघ राज्य क्षेत्र में सचिव, राज्य शहरी विकास विभाग म्युनिसिपल प्रशासन के आयुक्त या निदेशक या स्थानीय निकायों के निदेशक के माध्यम से निम्नलिखित सुनिश्चित करेगा :

(क) इन नियमों से सुसंगत अपशिष्ट प्रबंधन के क्षेत्र में अपशिष्ट चुनने वालों के प्रतिनिधियों, स्वयं सहायता समूह और अन्य समूहों सहित पणधारियों के परामर्श से राज्य या संघ राज्य क्षेत्र के लिए राज्य नीति और ठोस अपशिष्ट प्रबंधन रणनीति तैयार करना जो इन नियमों की अधिसूचना की तारीख से एक वर्ष की अवधि के भीतर शहरी विकास मंत्रालय की राष्ट्रीय ठोस अपशिष्ट प्रबंधन नीति और राष्ट्रीय शहरी स्वच्छता नीति से समरूप होगी;

(ख) ठोस अपशिष्ट प्रबंधन के संबंध में राज्य नीति और रणनीति तैयार करते समय भूमिभरण में जाने वाले अपशिष्ट का न्यूनीकरण को सुनिश्चित करने तथा राज्य नीति और ठोस अपशिष्ट प्रबंध रणनीति में मानव स्वास्थ्य और पर्यावरण पर ठोस अपशिष्ट के प्रभाव को न्यूनीकृत करने के लिए ठोस अपशिष्ट के विभिन्न संघटकों के अपशिष्ट में कमी, पुनःउपयोग, पुनर्चक्रण, बसूली और अनुकूलतम उपयोग पर बल देगा;

(ग) राज्य नीतियों और रणनीतियों में कूड़ा चुनने वालों एवं अपशिष्ट संग्रहकर्ताओं और पुनर्चक्रण उद्योग के अनौपचारिक सेक्टर द्वारा अपशिष्ट को कम करने में निभाई गई महत्वपूर्ण भूमिका को स्वीकार किया जाना और अपशिष्ट प्रबंधन प्रणाली में अपशिष्ट चुनने वालों या अनौपचारिक अपशिष्ट संग्रहकर्ताओं के एकीकरण के बारे में विस्तृत मार्गदर्शक सिद्धांत उपलब्ध कराना;

(घ) सभी स्थानीय प्राधिकरणों द्वारा इन नियमों के उपबंधों के क्रियान्वयन को सुनिश्चित करना;

(ङ) राज्य के शहरी योजना विभाग को यह सुनिश्चित करने के लिए निदेश देना कि उन शहरों को छोड़कर जो साझा अपशिष्ट प्रसंस्करण सुविधा या शहरों के एक समूह के लिए क्षेत्रीय स्वच्छता भूमिभरण के सदस्य हैं, राज्य या संघ राज्य क्षेत्र में प्रत्येक शहर की मास्टर प्लान में ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाएं स्थापित करने के लिए प्रावधान है;

(च) ठोस अपशिष्ट के लिए प्रसंस्करण और निपटान सुविधाएं स्थापित करने के लिए एक वर्ष के अंदर स्थानीय निकायों के वास्ते उपयुक्त भूमि की पहचान और आवंटन सुनिश्चित करना और उन्हें महानगर एवं जिला योजना समितियों या नगर एवं ग्राम योजना विभाग के माध्यम से राज्य/शहरों की मास्टर योजना (भूमि उपयोग की योजना) में शामिल करना;

(छ) राज्य और स्थानीय निकायों के शहरी योजना विभाग को यह सुनिश्चित करने के लिए निदेश देना कि 200 से अधिक आवास वाले या 5,000 वर्ग मीटर से अधिक क्षेत्रफल के प्लॉट वाली ग्रुप हाउसिंग या वाणिज्यिक, सांस्थानिक या अन्य गैर-आवासीय परिसर के लिए विकास योजना में ठोस अपशिष्ट के पृथक्करण, भंडारण, विकेंद्रित प्रसंस्करण के लिए एक अलग स्थल चिन्हित किया जाता है;

(ज) विशेष आर्थिक जोन, औद्योगिक संपदा, औद्योगिक पार्क के विकासकों को निदेश देना कि प्लॉट के कुल क्षेत्रफल का कम से कम 5 प्रतिशत प्लॉट या शैड बसूली या पुनर्चक्रण सुविधा के लिए आरक्षित करें;

(झ) लागत भागीदारी आधार पर क्षेत्रीय सुविधा से 50 कि. मी. (या अधिक) की दूरी के अन्तर्गत आने वाले शहरों और नगरों के समूह के साझा क्षेत्रीय स्वास्थ्यकर भूमिभरण की स्थापना को सुकर बनाना और ऐसे स्वास्थ्यकर भूमिभरणों के वृत्तिक प्रबंधन को सुनिश्चित करना;

(ञ) ठोस अपशिष्ट के प्रबंधन में शहरी स्थानीय निकायों के क्षमता निर्माण तथा स्रोत पर अपशिष्ट के पृथक्करण एवं परिवहन या प्रसंसकरण की व्यवस्था करना;

(ट) राज्य प्रदूषण नियंत्रण बोर्ड के साथ परामर्श करके 5 टन प्रतिदिन से अधिक के ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाओं के लिए बफर जोन अधिसूचित करना; और

(ठ) अपशिष्ट चुनने वालों और अपशिष्ट के व्यापारियों के पंजीकरण के संबंध में एक योजना शुरू करना।

12. जिला मजिस्ट्रेट या जिला कलक्टर या उपायुक्त के कर्त्तव्य.- यथा स्थिति, जिला मजिस्ट्रेट या जिला कलक्टर या उपायुक्त,

(क) इन नियमों की अधिसूचना की तारीख से एक वर्ष के भीतर राज्य शहरी विकास विभाग के प्रभारी सचिव के निकट समन्वय से अपने जिले में स्थानीय निकायों को ठोस अपशिष्ट प्रसंस्करण तथा निपटान सुविधाओं की स्थापना करने के लिए नियम 11 के खंड (च) के अनुसार उपयुक्त भूमि की पहचान तथा आवंटन को सुकर बनाएगा;

(ख) अपशिष्ट के पृथक्करण, प्रसंस्करण, उपचार और निपटान पर एक तिमाही में कम से कम तीन मास में एक बार स्थानीय निकायों के अनुपालन का पुनर्विलोकन करेगा और निदेशक या नगरपालिका प्रशासन के आयुक्त या स्थानीय निकायों के निदेशक और राज्य शहरी विकास के प्रभारी सचिव के साथ परामर्श करके उपचारात्मक उपाय करेगा।

13. राज्य और संघ राज्य क्षेत्र में ग्राम पंचायत या ग्रामीण विकास विभाग के प्रभारी सचिव के कर्तव्य.- (1) उन क्षेत्रों के लिए जो इन नियमों के अधीन आते हैं और उनके अधिकार क्षेत्र में हैं, राज्य और संघ राज्य क्षेत्र में ग्राम पंचायत या शहरी विकास विभाग के प्रभारी सचिव के कर्तव्य वही होंगे जो राज्य या संघ राज्य क्षेत्र में शहरी विकास के प्रभारी सचिव के हैं।

14. केन्द्रीय प्रदूषण नियंत्रण बोर्ड के कर्त्तव्य.- केन्द्रीय प्रदूषण नियंत्रण बोर्ड –

(क) इन नियमों के कार्यान्वयन के लिए राज्य प्रदूषण नियंत्रण बोर्डों और प्रदूषण नियंत्रण समितियों के साथ समन्वय करेगा और स्थानीय निकायों द्वारा विहित मानकों का पालन करेगा;

(ख) सभी ठोस अपशिष्ट प्रसंस्करण और निपटान सुविधाओं की वास्तव भूजल, परिवेशी वायु, ध्वनि प्रदूषण, निक्षालत के लिए मानक निश्चित करेगा;

(ग) ठोस अपशिष्ट प्रसंस्करण सुविधाओं या उपचार प्रौद्योगिकियों के लिए विहित पर्यावरणीय मानकों और मानियमों का पुनर्विलोकन करना और जब कभी भी अपेक्षित हो, उनको अद्यतन करना;

(घ) ठोस अपशिष्ट प्रसंस्करण सुविधाओं या उपचार प्रौद्योगिकियों के लिए विहित पर्यावरणीय मानकों के कार्यान्वयन को वर्ष में कम से कम एक बार राज्य प्रदूषण नियंत्रण बोर्डों/प्रदूषण नियंत्रण समितियों के माध्यम से पुनर्विलोकन और उनके द्वारा मॉनीटर किए गए आंकड़ों का संकलन करना;

(ङ) ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण और उपचार के लिए किसी नई प्रौद्योगिकी के प्रयोग पर राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के प्रस्तावों का पुनर्विलोकन करना और छः माह के अंदर उनके लिए निष्पादन मानक, उत्सर्जन मानदंड विहित करना;

(च) स्थानीय निकायों द्वारा इन नियमों के कार्यान्वयन को राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के माध्यम से मॉनीटर करना;

(छ) राज्य प्रदूषण नियंत्रण बोर्डों और समितियों से प्राप्त रिपोर्टों के आधार पर इन नियमों के कार्यान्वयन पर वार्षिक रिपोर्ट तैयार करना और उसे पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को प्रस्तुत करना तथा यह रिपोर्ट लोक अधिकार क्षेत्र में भी रखी जाएगी;

(ज) प्रतिदिन 5 टन से अधिक ठोस अपशिष्ट का प्रबंधन करने वाली सुविधाओं के विभिन्न आकारों के लिए अपशिष्ट प्रसंस्करण और निपटान सुविधाओं की बाहरी सीमाओं से किसी आवासीय, वाणिज्यिक या किसी अन्य संनिर्माण संबंधी क्रियाकलाप को प्रतिबंधित करने वाले बफर जोन को बनाए रखने के लिए मार्गदर्शक सिद्धांतों को प्रकाशित करना;

(झ) इन नियमों के प्रावधानों का अनुपालन करने के लिए ठोस अपशिष्ट के शहरी स्थानीय निकायों के सगर्ध बनाने के लिए प्रसंस्करण और निपटान के पर्यावरणीय पहलुओं पर समय-समय पर मार्गदर्शक सिद्धांत प्रकाशित करना; और

(ञ) अपशिष्ट के अंतरराज्यीय संचलन पर राज्यों या संघ राज्य क्षेत्रों को मार्गदर्शन प्रदान करना।

15. स्थानीय निकायों, और जनगणना नगरों की ग्राम पंचायतों तथा शहरी समूहों के कर्तव्य और उत्तरदायित्व.- (1) स्थानीय निकाय और पंचायतें :-

(क) राज्य नीति और रणनीति की अधिसूचना की तारीख से छह मास के भीतर ठोस अपशिष्ट प्रबंधन पर राज्य नीति और रणनीति के अनुसार ठोस अपशिष्ट प्रबंध योजना तैयार करना और उसकी एक प्रति राज्य सरकार या संघ राज्य प्रशासन द्वारा राज्य सरकार या संघ राज्य प्रशासन द्वारा प्राधिकृत अभिकरण को उसे अनुमोदित कराना;

(ख) मलिन बस्तियों तथा अनौपचारिक बसावटों, वाणिज्यिक, संस्थागत और अन्य गैर आवासीय परिसरों सहित सभी घरों से पृथक्कृत ठोस अपशिष्ट का द्वार-द्वार के संग्रहण की व्यवस्था करना। बहु मंजिलों भवनों, बड़े वाणिजियक परिसरों, मॉलों, आवासीय परिसरों इत्यादि से अपशिष्ट का संग्रहण प्रवेश द्वार या किसी अन्य अभिहित स्थान किया जा सकता है;

(ग) कूड़ा चुनने वालों/अनौपचारिक अपशिष्ट संग्रहकर्ताओं के संगठनों को मान्यता प्रदान करने की प्रणाली स्थापित करना और द्वार-द्वार जाकर अपशिष्ट संग्रह करने सहित ठोस अपशिष्ट के प्रबंधन में इनकी भागीदारी को सुकर बनाने के लिए इन प्राधिकृत चुनने वालों और अपशिष्ट संग्रहणकर्ताओं के एकीकरण के लिए एक प्रणाली स्थापित करना;

(घ) स्वयं सहायता समूह बनाने को सुकर बनाना, पहचान पत्र उपलब्ध कराना और तदुपरांत घर-घर जाकर अपशिष्ट संग्रह करने सहित ठोस अपशिष्ट प्रबंधन में एकीकरण को प्रोत्साहन देना;

(ङ) इन नियमों की अधिसूचना की तारीख से एक वर्ष के भीतर इन नियमों के उपबंधों को समाविष्ट करते हुए उपविधियां बनाना और समय पर कार्यान्वयन सुनिश्चित करना;

(च) उपयोक्ता फीस, जो समुचित समझी जाए, समय-समय पर विहित करना और स्वयं या प्राधिकृत अभिकरण के माध्यम से ठोस अपशिष्ट उत्पन्नकर्ताओं से फीस का संग्रह करना;

(छ) अपशिष्ट उत्पन्नकर्ताओं को निदेश देना कि कूड़ा करकट न फैलाएं अथवा कागज, पत्ती की प्लेटें, पेय पदार्थों के केनों, टेट्रा पैक्स, फलों के छिलके, रैपर आदि या सड़क खुले सार्वजनिक स्थान, नालों अपशिष्ट निकायों पर न जलाए या कुंड में न फेंके या उनका निपटान न करें तथा इन नियमों के अधीन विहित किए गए अनुसार स्रोत अपशिष्ट को अलग-अलग करें और पृथक किए गए अपशिष्ट को स्थानीय निकाय द्वारा प्राधिकृत अपशिष्ट चुनने वालों या प्राधिकृत अपशिष्ट संग्रहकर्ता को सौंप दें;

(ज) पुनर्चक्रणीय सामग्रियों छंटाई करने के लिए पर्याप्त स्थान के साथ सामग्री वसूली सुविधाएं या गौण भंडारण सुविधाएं स्थापित करना ताकि अनौपचारिक या प्राधिकृत अपशिष्ट चुनने वाले और अपशिष्ट संग्रह करने वाले अपशिष्ट में से पुनर्चक्रणीय सामग्रियों को अलग कर सकें या उत्पादन के स्रोत से या सामग्री वसूली सुविधाओं से कागज, प्लास्टिक, धातु, शीशा, कपड़ा आदि जैसे पृथक किए गए पुनर्चक्रणीय अपशिष्ट को संग्रह करने के लिए अपशिष्ट चुनने वालों और पुनर्चक्रकों को सुलभ मार्ग उपलब्ध कराना; जैव निम्नीकरण अपशिष्ट के भंडारण के लिए डिब्बे हरे रंग से मुद्रित होंगे, जो पुनर्चक्रण के अपशिष्ट के भंडारण के लिए सफेद रंग से मुद्रित होंगे और अन्य अपशिष्ट के भंडारण के लिए काले रंग से मुद्रित होंगे;

(झ) घरेलू परिसंकटमय अपशिष्ट के लिए अपशिष्ट निक्षेपण केंद्रों की स्थापना करना और अपशिष्ट उत्पन्नकर्ताओं को निदेश देना कि घरेलू परिसंकटमय अपशिष्टों निक्षेपण परिसंकटमय अपशिष्ट निपटान सुविधा में उसके सुरक्षित निपटान के लिए इस केंद्र में करें। ऐसी सुविधा की स्थापना किसी शहर या नगर में इस ढंग से की जाएगी कि एक केंद्र की स्थापना बीस किलोमीटर क्षेत्रफल या उसके भाग के लिए हो जाए और इन केंद्रों में घरेलू परिसंकटमय अपशिष्ट प्राप्त करने के समय अधिसूचित होगा;

(ञ) परिसंकटमय अपशिष्ट निपटान सुविधा तक घरेलू परिसंकटमय अपशिष्ट का सुरक्षित भंडारण और परिवहन सुनिश्चित करना या जो राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति द्वारा निर्देश किया जाए;

(ट) गली के सफाई कर्मचारियों को निदेश देना कि गली की सफाई से संग्रहीत पेड़ के पत्तों को न जलाएं तथा उन्हें अलग से भंडारण करें और स्थानीय निकाय द्वारा प्राधिकृत अपशिष्ट संग्रहकर्ता या अभिकरण को सौंपें;

(ठ) अपशिष्ट चुनने वालों और अपशिष्ट संग्रहकर्ताओं को ठोस अपशिष्ट प्रबंधन का प्रशिक्षण देना;

(ड) दिन-प्रतिदिन आधार पर बाजारों से सब्जियों, फलों, फूलों, मांस, कुक्कुट पालन और मछली बाजार में अपशिष्ट संग्रह करना और स्वास्थ्यकर स्थिति सुनिश्चित करने के लिए बाजारों में उचित स्थानों पर या बाजारों के आस-पास विकेन्द्रीकृत कंपोस्ट प्लांट या जैव मिथेनीकरण प्लांट की स्थापना को प्रोत्साहन देना;

(ढ) जनसंख्या के घनत्व, वाणिज्यिक क्रियाकलाप और स्थानीय स्थिति पर निर्भर करते हुए दैनिक या वैकल्पिक दिवसों या सप्ताह में दो बार सड़कों, मार्गों, गलियों और उप-गलियों की सफाई के अपशिष्ट को पृथक रूप से संग्रह करना;

(ण) सड़क की सफाई के कूड़े और सतही नालियों से निकाली गई गाद को जिन मामलों में इन अपशिष्टों का सीधा संग्रह करने के लिए परिवहन वाहन सुविधाजनक व्यवहार्य नहीं है, अस्थाई रूप से भंडारण करने के लिए आच्छादित गौण भंडारण सुविधा स्थापित करना। इस प्रकार संग्रह किए गए अपशिष्ट का संग्रह और निपटान स्थानीय निकाय द्वारा यथा निर्धारित नियमित अंतराल पर किया जाएगा;

(त) बागवानी, उद्यानों और बगीचों के अपशिष्ट को पृथक रूप से संग्रह करना और जहां तक संभव हो उसका प्रसंस्करण पार्कों और बगीचों में करना;

(थ) पृथक किए गए जैव निम्नीकरणीय अपशिष्ट का परिवहन प्रसंस्करण सुविधाओं जैसे कंपोस्ट प्लांट, जैव मिथेनिकरण संयंत्र या ऐसी कोई सुविधा तक करना। ऐसे अपशिष्ट के स्थल पर प्रसंस्करण को अधिमान्यता दी जानी चाहिए;

(ट) क्रमवर्ती प्रसंस्करण सुविधा या सामग्री पुनःप्राप्ति सुविधाओं या द्वितीयक भंडारण सुविधा को गैर जैव निम्नीकरणीय अपशिष्ट को परिवहन करना;

(ठ) निर्माण और विध्वंस अपशिष्ट का परिवहन समय-समय पर यथासंशोधित निर्माण और विध्वंस अपशिष्ट प्रबंधन नियम, 2016 के उपबंधों के अनुसार करना;

(ड) समुदाय सुविधा के आस-पास दुर्गंध के नियंत्रण और स्वास्थ्य रक्षक स्थितियों के अनुरक्षण के अध्यधीन समुदाय स्तर पर घरेलू कंपोस्टिंग, बायोगैस उत्पादन, अपशिष्ट के विकेंद्रित प्रसंस्करण में समुदायों को अंतर्वलित करना;

(ढ) दो वर्षों के भीतर रासायनिक खाद के उपयोग को चरणबद्ध रूप से समाप्त करना और स्थानीय निकायों द्वारा अनुरक्षित सभी उद्यानों, बगीचों में कंपोस्ट का प्रयोग करना और जहां कहीं संभव हो इसके अधिकारिता के अधीन अन्य स्थानों पर भी ऐसा करना अनौपचारिक अपशिष्ट पुनर्चक्रण क्षेत्र द्वारा की जाने वाली पुनर्चक्रण पहलों को प्रोत्साहन उपलब्ध कराए जा सकते हैं;

(फ) उपयुक्त प्रौद्योगिकी जिसके अंतर्गत निम्नलिखित प्रौद्योगिकियां भी हैं, को अंगीकृत करते हुए और समय-समय पर शहरी विकास मंत्रालय द्वारा समय-समय पर जारी मार्गदर्शी सिद्धांतों और केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी दिशानिर्देशों का पालन करते हुए ठोस अपशिष्ट के विभिन्न अवयवों के उचित उपयोग के लिए स्वयं या निजी क्षेत्र के सहभागी या किसी अभिकरण के माध्यम से ठोस अपशिष्ट प्रसंस्करण सुविधाओं और संबंधित अवसंरचना के संनिर्माण, प्रचालन और अनुरक्षण को सुकर बनाना; परिवहन लागत और पर्यावरणीय आघात को न्यूनतम करने के लिए विकेन्द्रीयकृत प्रसंस्करण को अधिमान्यता देना जैसे,-

(क) जैव-मिथैनिकरण, सूक्ष्म जैविक कंपोस्टिंग, वर्मी कंपोस्टिंग, अनारोबिक डाईजेशन या जैव निम्नकरणीय-अपशिष्टों के जैव स्थिरीकरण के लिए कोई अन्य समुचित प्रसंस्करण;

(ख) अपशिष्ट के दहनशील भाग के लिए अवशिष्ट जनित ईंधन सहित अपशिष्ट से ऊर्जा प्रक्रियाएं या अपशिष्ट आधारित विद्युत प्लांटों या सीमेंट भट्टियों को फीड स्टॉक के रूप में आपूर्ति;

(त) इन नियमों के अधीन विहित रीति से अवशेष अपशिष्टों के निपटान के लिए अनुसूची-I के अनुसार स्वास्थ्यकर भरण स्थलों और आनुषंगिक अवसंरचना का निर्माण, प्रचालन और अनुरक्षण स्वयं या किसी अन्य अभिकरण के माध्यम से करना;

(थ) वार्षिक बजट में पूंजी निवेश के साथ-साथ ठोस अपशिष्ट प्रबंधन सेवाओं के प्रचालन और अनुरक्षण के लिए निधियों का पर्याप्त उपबंध करना और यह सुनिश्चित करना कि स्थानीय निकाय के वैधेकिक कृत्यों के लिए निधियां ठोस अपशिष्ट प्रबंधन तथा इन नियमों के अनुसार स्थानीय निकाय के अन्य बाध्यकारी कृत्यों के लिए आवश्यक निधियों की अपेक्षा पूर्ण करने के पश्चात् की आबंटित की जाएं;

(द) प्ररूप-1 में अपशिष्ट प्रसंस्करण, शोधन या निस्तारण सुविधा स्थापित करने के लिए प्राधिकार अनुदत्त करने के लिए आवेदन करना जिसके अंतर्गत वर्तमानस्थिति राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति से स्वास्थ्यकर भरण स्थल सहित प्रतिदिन 5 मीट्रिक टन से अधिक अपशिष्ट हो;

(ध) प्राधिकार की विधिमान्यता समाप्त होने से कम से कम साठ दिन पूर्व प्राधिकार के नवीकरण के लिए आवेदन करना;

(क) उत्तरवर्ती वर्ष के 30 अप्रैल या उससे पूर्व आयुक्त या निदेशक, नगरपालिका प्रशासन को या प्राधिकृत अधिकारी को प्ररूप-4 में वार्षिक रिपोर्ट तैयार और प्रस्तुत करना;

(ख) वार्षिक रिपोर्ट प्रत्येक वर्ष के 31 मई तक शहरी विकास विभाग के प्रभारी सचिव या ग्राम पंचायत या ग्रामीण विकास विभाग और संबंधित राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति को भेजी जाएगी;

(ग) कार्मिकों जिसके अंतर्गत संविदा कार्मिकों और पर्यवेक्षकों भी है, को पृथक किए गए अपशिष्ट के द्वार-द्वार से संग्रहण के लिए और प्रसंस्करण या निपटान सुविधा को प्राथमिक और द्वितीयक परिवहन के दौरान अमिश्रित अपशिष्ट के संबंध में प्रशिक्षण;

(घ) यह सुनिश्चित करना कि प्रसुविधा का प्रचालक व्यक्तिगत सुरक्षा उपकरण अर्थात् वर्दी, प्रदीप्त जैकट, हाथ के दस्ताने, बरसाती, समुचित जूते और मास्क ठोस अपशिष्ट के ग्रहस्तन में लगे सभी कार्मिकों को उपलब्ध कराए और कार्यबल द्वारा इनका उपयोग सुनिश्चित किया जाए;

(ङ) किसी ग्रुप हाउसिंग सोसाइटी या मार्केट काम्पलैक्स की निर्माण योजना से पूर्व सुनिश्चित करने की भवन योजना में पृथक किए गए अपशिष्टों के संग्रहण, पृथक्करण और भंडारण के लिए अपशिष्ट संग्रहण केन्द्र स्थापित किया जाना सुनिश्चित किया जाए;

(यच) कचरा फैलाने वाले या इन नियमों के उपबंधों का अनुपालन करने में असफल रहने वाले व्यक्तियों के लिए स्थल ही जुर्माना लगाने के लिए उपविधि बनाना और मापदंड विहित करना तथा बनाई गई उपविधियों के अनुसार स्थल पर ही जुर्माना लगाने की शक्तियां उचित अधिकारियों या स्थानीय निकायों को प्रत्यायोजित करना; और

(यछ) सूचना, शिक्षण और संचार अभियान के माध्यम से लोक जागरूकता का सृजन करना और निम्नलिखित के संबंध में अपशिष्ट उत्पन्न करने वालों को जानकारी देना;

i. कचरा न फैलाना;

ii. कम अपशिष्ट उत्पन्न करना;

iii. संभव सीमा तक अपशिष्ट का पुनःउपयोग;

iv. अपशिष्ट का जैव निम्नीकरणीय, गैर-जैव निम्नीकरणीय (पुनर्चक्रण योग्य तथा दहनयोग्य), स्वास्थ्यकर अपशिष्ट और घरेलू परिसंकटमय अपशिष्ट के रूप में स्रोत पर पृथक्करण;

v. घरेलू कंपोस्टिंग, वर्मिन कंपोस्टिंग, बायोगैस उत्पादन या समुदाय स्तरीय कंपोस्टिंग/बायोगैस उत्पादन का व्यवहार करना;

vi. उपयोग हुए प्रसाधन अपशिष्ट को ब्रांड स्वामियों द्वारा उपलब्ध कराए गए पाउचों या स्थानीय निकाय द्वारा विहित उपयुक्त लपेटने वाली सामग्री में लपेटना और इसे गैर जैव निम्नीकरणीय अपशिष्ट के लिए रखे गए डिब्बों में डालना;

vii. स्रोत पर पृथक्कृत अपशिष्टों का अलग-अलग डिब्बों में भंडारण करना;

viii. अपशिष्ट चुनने वालों, अपशिष्ट संग्राहकों, पुनःचक्रणकर्ताओं या अपशिष्ट संग्रहण अभिकरणों को पृथक्कृत अपशिष्ट सौंपना; और

ix. अपशिष्ट एकत्र करने वालों या स्थानीय निकायों या स्थानीय निकाय द्वारा प्राधिकृत किसी अन्य व्यक्ति को ठोस अपशिष्ट प्रबंधन के लिए मासिक उपयोक्ता फीस या प्रभार का संदाय करना।

(यज) स्वास्थ्यकर स्थल की स्थापना और प्रचालन के लिए नियम 23 में यथाविनिर्दिष्ट समय सीमा के समाप्त होने के तुरंत पश्चात् मिश्रित अपशिष्ट से भरण स्थल को भरना या एकत्र करना बंद किया जाए;

(यझ) अपशिष्ट प्रसंस्करण सुविधाओं से केवल अप्रयोजनीय, गैर-पुनर्चक्रणयोग्य, गैर-जैवनिम्नीकरणीय, गैर-दहनशील और गैर-सक्रिय अपशिष्ट और पूर्व प्रसंस्करण अपशिष्टों तथा अवशिष्टों को ही स्वास्थ्यकर भरण स्थल पर जाने देने की अनुमति दी जाए और स्वास्थ्यकर भरण स्थलों द्वारा अनुसूची 1 में दी गई विशिष्टियों का अनुपालन किया जाएगा। तथापि, अवशिष्टों का यथासंभव पुनर्चक्रण या पुनप्रयोग किए जाने के प्रयास किए जाने चाहिए ताकि भरण स्थल तक शून्य अपशिष्ट जाने के अपेक्षित लक्ष्य की प्राप्ति हो सके;

(यञ) सभी पुराने खुले मलबा स्थलों तथा विद्यमान प्रचालनरत मलबा स्थलों के जैव-खनन तथा जैव-उपचार की संभाव्यता के लिए जांच और विश्लेषण करना और जहां कहीं व्यवहार्य हो स्थलों के जैव-खनन या जैव-उपचार हेतु आवश्यक कार्रवाई करना;

(यट) मलबा स्थल के जैव-खनन और जैव-उपचार की संभाव्यता न होने की स्थिति में पर्यावरण को होने वाली क्षति को रोकने के लिए इसे भरण स्थल कैपिंग मानकों के अनुसार वैज्ञानिक रूप से आच्छादित जाएगा।

16. राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति के कर्तव्य.- (1) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा -

(क) अपनी-अपनी अधिकारिता में स्थानीय निकायों के माध्यम से राज्य में इन नियमों का प्रवर्तन किया जाएगा तथा संबंधित नगरपालिका प्रशासन निदेशालय या राज्य शहरी विकास विभाग के प्रभारी सचिव के निकट समन्वय से वर्ष में कम से कम दो बार इन नियमों के क्रियान्वयन की समीक्षा की जाएगी;

(ख) अपशिष्ट प्रसंस्करण और निस्तारण स्थलों के लिए अनुसूची I और अनुसूची II के अधीन यथा विनिर्दिष्ट पर्यावरणीय मानकों को मॉनीटर करना तथा शर्तों का पालन करना;

(ग) स्थानीय निकाय या स्थानीय निकाय द्वारा प्राधिकृत किसी अन्य अभिकरण से प्ररूप 1 में आवेदन की प्राप्ति के पश्चात् प्रस्ताव का परीक्षण करना और ऐसी जांच करना जो उचित समझा जाए;

(घ) प्राधिकार के प्रस्ताव की जांच करते समय, संबंधित अधिनियमितियों के अधीन सहमति की अपेक्षा और अन्य अभिकरणों जैसे राज्य शहरी विकास विभाग, नगर और ग्राम योजना विभाग, जिला योजना समिति या महानगरीय क्षेत्र योजना समिति, जैसा लागू हो, विमानपत्तन या एयरबेस प्राधिकरण, भू-जल बोर्ड, रेलवे, विद्युत वितरण कंपनियां, राजमार्ग विभाग और अन्य संबंधित अभिकरणों के विचारों को ध्यान में रखा जाएगा और उन्हें अपने विचार, यदि कोई हों, देने के लिए चार सप्ताह का समय दिया जाएगा;

(ङ) स्थानीय निकाय या किसी सुविधा प्रचालक या स्थानीय प्राधिकरण द्वारा प्राधिकृत किसी अन्य अभिकरण को प्ररूप 2 में साठ दिन की अवधि के भीतर प्राधिकार जारी करना जिसमें यथाआवश्यक अन्य शर्तों सहित अनुसूची 1 और 2 में यथाविनिर्दिष्ट अनुपालन मापदंड और पर्यावरण मानक अधिकथित हों;

(च) ऐसे प्राधिकार की विधिमान्यता सहमतियों की विधिमान्यता के साथ समकालिक होगी;

(छ) यदि स्थानीय प्राधिकरण या सुविधा प्रचालक सुविधा का प्रचालन विहित शर्तों के अनुसार करने में असफल रहता है तो राज्य प्रदूषण नियंत्रण बोर्ड द्वारा खंड (क) के अधीन जारी उक्त प्राधिकार को निलंबित या रद्द किया जा सकेगा;

परंतु यथास्थिति, स्थानीय निकाय या प्रचालक को सूचना दिए बिना ऐसा कोई प्राधिकार निलंबित या रद्द नहीं किया जाएगा; और

(ज) नवीकरण के लिए आवेदन की प्राप्ति पर, प्रत्येक आवेदन को गुणागुण के आधार पर परीक्षा करने के पश्चात् और इस शर्त के अधीन रहते हुए कि सुविधा के प्रचालन में नियमों के सभी उपबंधों, प्राधिकार, सहमति या पर्यावरण अनापत्ति में विनिर्दिष्ट मानकों या शर्तों को पूर्ण कर दिया है, अगले पांच वर्षों के लिए प्राधिकार का नवीकरण करेगा;

(2) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति आवेदक को सुने जाने का युक्तियुक्त अवसर देने के पश्चात् और लिखित में कारणों को लेखबद्ध करने के पश्चात् प्राधिकार अनुदत्त करने या नवीकरण करने से इंकार कर सकेगा।

(3) नई प्रौद्योगिकियों के मामले में, जहां यथास्थिति, केन्द्रीय प्रदूषण नियंत्रण बोर्ड, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा कोई मानक विहित नहीं किया गया है, मानक विनिर्दिष्ट करने के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड से निवेदन करेगा।

(4) यथास्थिति, राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति जब कभी उचित समझा जाए किन्तु वर्ष में कम से कम एक बार, यथाअभिहित या अधिकथित मानकों तथा यथाअनुमोदित उपचार प्रौद्योगिकी तथा प्राधिकार में निर्दिष्ट शर्तों और इन नियमों के अधीन अनुसूची-1 और अनुसूची-2 में विनिर्दिष्ट मानकों का अनुपालन मॉनीटर करेगा।

(5) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति परिसंकटमय अपशिष्ट भंडारण सुविधाओं में अपशिष्ट उत्पादकों द्वारा एकत्रित करेगा परिसंकटमय अपशिष्ट के सुरक्षित प्रहस्तन और निस्तारण के लिए स्थानीय निकायों को निदेश देगा।

(6) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा अपशिष्ट के अंतर राज्य प्रचालन को विनियमित किया जाएगा।

17. निपटानयोग्य उत्पादों तथा स्वास्थ्यकर नैपकिनों और डायपरों के विनिर्माताओं या ब्रांड स्वामियों के कर्तव्य.- (1) निपटान योग्य उत्पादों जैसे टिन, कांच, प्लास्टिक पैकेजिंग इत्यादि के सभी निर्माता या ऐसे उत्पादों को बाजार में लाने वाले ब्रांड स्वामी अपशिष्ट प्रबंधन प्रणाली की स्थापना के लिए स्थानीय निकायों को आवश्यक वित्तीय सहायता उपलब्ध कराएंगे।

(2) गैर जैव-निम्नीकरणीय पैकेजिंग सामग्री में अपने उत्पादों की बिक्री या विपणन करने वाले ऐसे सभी ब्रांड स्वामी उनके उत्पाद के कारण उत्पन्न हुए पैकेजिंग अपशिष्ट को वापस ग्रहण करने के लिए प्रणाली की व्यवस्था करेंगे।

(3) स्वास्थ्यकर नैपकिनों तथा डायपरों के विनिर्माताओं या ब्रांड स्वामियों या विपणन कंपनियों द्वारा अपने उत्पादों में सभी पुनर्चक्रणयोग्य सामग्रियों के प्रयोग की संभाव्यता का पता लगाएंगे या अपने स्वास्थ्यकर उत्पादों के पैकेट के साथ प्रत्येक नैपकिन या डायपर के निस्तारण के लिए एक पाउच या रैपर उपलब्ध कराएंगे।

(4) ऐसे सभी विनिर्माताओं, ब्रांड स्वामियों या विपणन कंपनियों द्वारा अपने उत्पादों को लपेटने और उनका निस्तारण करने के संबंध में लोगों को जानकारी दी जाएगी।

18. कचरा व्युत्पन ईंधन से सौ कि.मी. के अंदर अवस्थित औद्योगिक इकाईयों और ठोस अपशिष्ट आधारित ऊर्जा संयंत्रों के कर्तव्य.- ईंधन का प्रयोग करने वाली और ठोस अपशिष्ट आधारित कचरा व्युत्पन ईंधन संयंत्र से सौ कि.मी. के भीतर अवस्थित सभी औद्योगिक इकाइयां इस प्रकार उत्पन्न कचरा व्युत्पन ईंधन द्वारा अपनी ईंधन अपेक्षा के कम से कम 5 प्रतिशत का प्रतिस्थापन करने के लिए इन नियमों की अधिसूचना की तारीख से छह मास के भीतर व्यवस्था करेंगे।

19. ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधा की स्थापना के लिए मानदंड.- (1) भूमि समनुदेशन कार्य आवंटन विभाग ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं की स्थापना के लिए उपयुक्त भूमि उपलब्ध कराने और राज्य सरकार या संघ राज्य क्षेत्र प्रशासन से ऐसे स्थलों को अधिसूचित करने के लिए उत्तरदायी होंगे।

(2) सुविधा का प्रचालक समय-समय पर इस संबंध में केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी तकनीकी मार्गदर्शी सिद्धांतों और शहरी विकास मंत्रालय द्वारा तैयार किए गए ठोस अपशिष्ट प्रबंधन संबंधी मैनुअल के अनुसार सुविधा का डिजाइन करेगा और इसकी स्थापना करेगा।

(3) सुविधा के प्रचालक द्वारा राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति से आवश्यक अनुमोदन प्राप्त किया जाएगा।

(4) राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति द्वारा ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं के प्रचालन के पर्यावरण मानकों की मॉनीटरी की जाएगी।

(5) सुविधा के प्रचालक का उत्तरदायित्व समय-समय पर केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा जारी मार्गदर्शी सिद्धांतों और समय-समय पर शहरी विकास मंत्रालय द्वारा प्रकाशित नगरीय ठोस अपशिष्ट प्रबंधन संबंधी मैनुअल के अनुसार ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं के पर्यावरण के दृष्टि से अनुकूल प्रचालन की होगी।

(6) ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधा के प्रचालक द्वारा राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति और स्थानीय प्राधिकरण को प्रत्येक वर्ष 30 अप्रैल तक प्ररूप 3 में वार्षिक रिपोर्ट प्रस्तुत करेगा।

20. पर्वतीय क्षेत्रों में ठोस अपशिष्ट प्रबंधन के मानदंड और की जाने वाली कार्रवाईयां.- पर्वतीय क्षेत्रों में स्थानीय प्राधिकरणों के कर्तव्य और दायित्व निम्नलिखित अतिरिक्त खंडों के सहित नियम 15 में उल्लिखित के समान होंगे :

(क) पर्वत पर भरण स्थल के संनिर्माण से बचना होगा। प्रसंस्करण सुविधा से अवशिष्ट अपशिष्ट और निष्क्रिय अपशिष्ट का संग्रहण करने के लिए एक उपयुक्त निकटतम अवस्थान पर एक अंतरण स्थान स्थापित किया जाएगा। स्वास्थ्यकर भरण की स्थापना करने के लिए 25 किलोमीटर के भीतर पहाड़ी के नीचे समतल भूमि क्षेत्र में योग्य भूमि का पहचान की जाएगी। अंतरण स्थान से अवशिष्ट अपशिष्ट का निपटान इस स्वास्थ्यकर भरण स्थल पर किया जाएगा।

(ख) ऐसी भूमि उपलब्ध न होने पर की दशा में निष्क्रिय और अवशिष्ट अपशिष्ट के लिए क्षेत्रीय स्वास्थ्यकर भरण स्थल स्थापित करने के प्रयास किए जाएंगे।

(ग) स्थानीय निकाय उपविधि बनाएगा और नागरिकों को गलियों में अपशिष्ट फैंकने से प्रतिषिद्ध करने तथा पर्यटकों को गलियों में या पहाड़ियों से नीचे न फैंकने किसी अपशिष्ट जैसे कागज, पानी की बोतल, शराब की बोतल, सॉफ्ट ड्रिंक के केन, टेट्रा पैक, अन्य कोई प्लास्टिक या कागज अपशिष्ट के स्थान पर सभी पर्यटक स्थलों पर स्थानीय निकाय द्वारा रखे गए कूड़ेदान में फेंकने के निर्देश देना।

(घ) स्थानीय निकाय द्वारा, पर्वतीय क्षेत्रों का भ्रमण करने वाले सभी पर्यटकों को उपविधियों के अधीन ठोस अपशिष्ट प्रबंधन के उपबंधों को नगर में प्रवेश बिंदु के साथ-साथ होटलों तथा अतिथि गृहों इत्यादि के माध्यम से, जहां वे ठहरते हैं और पर्यटन स्थलों पर उपयुक्त विज्ञापन बोर्ड लगाकर, व्यवस्था करेगा।

(ङ) स्थानीय निकाय ठोस अपशिष्ट प्रबंधन सेवाएं संग्रहणीय बनाने को प्रवेश द्वार पर पर्यटक से ठोस प्रबंधन प्रभार उद्गृहीत कर सकेगा।

(च) भूमि समनुदेशन का प्रभारी विभाग विकेन्द्रीकृत अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना के लिए पर्वतों पर उपयुक्त स्थल की पहचान और आवंटन करेगा। स्थानीय निकाय द्वारा ऐसी सुविधाएं स्थापित की जाएंगी। पर्वतीय स्थान का अनुकूलतम उपयोग करने के लिए सीढ़ी उद्यान प्रणाली को अपनाया जा सकेगा।

21. अपशिष्ट से ऊर्जा प्रसंस्करण के लिए मानदंड - (1) 1500 कि./कैल./कि.ग्रा. या अधिक के कैलोरिफिक मान रखने वाले गैर पुनःचक्रण अपशिष्टों को भरण स्थलों में निस्सारित नहीं किया जाएगा और उनका उपयोग या तो केवल व्युत्पन्न ईंधन

अवशेष के माध्यम से या अवशेष व्युत्पन्न ईंधन तैयार करने के लिए फीड स्टॉक के रूप में देकर या ऊर्जा का उत्पादन करने के लिए ही किया जाएगा।

(2) उच्च कैलोरिफिक अपशिष्टों का उपयोग सीमेंट या ताप विद्युत संयंत्रों में सह-प्रसंस्करण के लिए किया जाएगा।

(3) स्थानीय निकाय या सुविधा का प्रचालक या उनके द्वारा नामनिर्दिष्ट अभिकरण जो पांच टन प्रतिदिन से अधिक प्रसंस्करण क्षमता वाली सुविधा के अपशिष्ट के ऊर्जा संयंत्र की स्थापना करना चाहते हों, वे यथास्थिति, राज्य प्रदूषण नियंत्रक बोर्ड या प्रदूषण नियंत्रण समिति को प्राधिकार के लिए प्ररूप-1 में आवेदन प्रस्तुत करेंगे।

(4) अपशिष्ट से ऊर्जा सुविधा की स्थापना करने के लिए ऐसे आवेदनों की प्राप्ति पर राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति उसका परीक्षण करेगा और साठ दिनों के अंदर अनुमति प्रदान करेगा।

22. क्रियान्वयन की समय-सीमा - इन नियमों के क्रियान्वयन के लिए आवश्यक अवसंरचना यथास्थिति, स्थानीय निकायों और अन्य संबंधित प्राधिकरणों द्वारा प्रत्यक्ष तथा स्वयं या नियोजित अभिकरणों द्वारा निम्नलिखित विनिर्दिष्ट समय-सीमा में सृजित की जाएगी :

क्रम सं.	क्रियाकलाप	नियमों की अधिसूचना की तारीख से समय-सीमा
(1)	योग्य अपशिष्ट प्रसंस्करण सुविधा को स्थापित करने के लिए उपयुक्त स्थलों की पहचान करना	1 वर्ष
(2)	0.5 करोड़ जनसंख्या से कम के स्थानीय निकायों के योग्य उपयुक्त समूह के लिए साझा क्षेत्रीय स्वास्थ्यकर भरण सुविधा को स्थापित करने के लिए और 0.5 करोड़ या अधिक की जनसंख्या वाले सभी स्थानीय प्राधिकरणों द्वारा साझा क्षेत्रीय स्वास्थ्यकर भरण स्थल सुविधाओं या एकल भरण सुविधाओं की स्थापना करने के लिए उपयुक्त स्थलों की पहचान।	1 वर्ष
(3)	ठोस अपशिष्ट प्रसंस्करण सुविधा और स्वास्थ्यकर भरण स्थल सुविधाओं के लिए उपयुक्त स्थलों का उपापन।	2 वर्ष
(4)	जैव निम्नीकरणीय, पुनःचक्रण योग्य, दहन योग्य, स्वास्थ्यकर अपशिष्ट, घरेलू परिसंकटमय तथा निष्क्रिय ठोस अपशिष्टों का स्रोत पर पृथक्करण के लिए चलन के लिए अपशिष्ट उत्पन्नकर्ताओं को बाध्य करना।	2 वर्ष
(5)	पृथक्कृत अपशिष्ट घर-घर से एकत्र करके और प्रसंस्करण या निपटान सुविधाओं का परिवहन आच्छादित वाहनों में सुनिश्चित करना।	2 वर्ष
(6)	संनिर्माण तथा विध्वंस अपशिष्टों का अलग-अलग भंडारण, संग्रहण और परिवहन सुनिश्चित करना।	2 वर्ष
(7)	100000 से अधिक जनसंख्या वाले सभी स्थानीय निकायों द्वारा ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना करना।	2 वर्ष
(8)	100000 से कम जनसंख्या वाले स्थानीय निकायों और नगरों द्वारा ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना करना।	3 वर्ष
(9)	इन नियमों के अधीन यथा अनुज्ञात प्रसंस्करण सुविधाओं से केवल ऐसे अवशिष्ट अपशिष्टों के साथ-साथ अशोधित निष्क्रिय अपशिष्ट के निपटान के	3 वर्ष

	लिए 0.5 करोड़ या उससे अधिक की जनसंख्या वाले सभी स्थानीय निकायों द्वारा या के लिए सम्मिलित या एकल भरण की स्थापना।	
(10)	इन नियमों के अधीन अनुज्ञात अपशिष्ट के निपटान के लिए 0.5 करोड़ से कम के अधीन सभी स्थानीय निकायों और जनसंख्या नगरों द्वारा सम्मिलित या क्षेत्रीय भरण स्थलों की स्थापना।	3 वर्ष
(11)	पुराने या परित्यक्त कूड़ा स्थलों का जैविक उपचार करना या उन्हें ढकना।	5 वर्ष

23. राज्य स्तरीय सलाहकार निकाय.- (1) संबंधित राज्य सरकार या संघ राज्य क्षेत्र प्रशासन के स्थानीय निकायों का प्रत्येक विभाग प्रभारी इन नियमों की अधिसूचना की तारीख से छह मास के भीतर एक राज्य स्तरीय सलाहकार समिति का गठन करेगा जिसमें निम्नलिखित सदस्य शामिल होंगे:-

क्रम संख्या	पदनाम	सदस्य
(1)	(2)	(3)
1.	राज्य के शहरी विकास विभाग/स्थानीय स्वशासन विभाग के सचिव	अध्यक्ष, पदेन
2	राज्य सरकार के पंचायत या ग्रामीण विकास विभाग का संयुक्त सचिव से अन्यून पंक्ति का एक प्रतिनिधि	सदस्य, पदेन
3.	राज्य सरकार के राजस्व विभाग का एक प्रतिनिधि	सदस्य, पदेन
4.	पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
5.	शहरी विकास मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
6.	ग्रामीण विकास मंत्रालय, भारत सरकार का एक प्रतिनिधि	सदस्य, पदेन
7.	केंद्रीय प्रदूषण नियंत्रण बोर्ड का एक प्रतिनिधि	सदस्य, पदेन
8.	राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति का एक प्रतिनिधि	सदस्य, पदेन
9.	भारतीय प्रौद्योगिकी संस्थान या राष्ट्रीय प्रौद्योगिकी संस्थान का एक प्रतिनिधि	सदस्य, पदेन
10.	राज्य का मुख्य नगर नियोजक	सदस्य
11.	स्थानीय निकायों के चक्रानुक्रम द्वारा तीन प्रतिनिधि,	सदस्य
12.	जनगणना नगरों/शहरी समुदायों के दो प्रतिनिधि	सदस्य
13.	अपशिष्ट चुनने वालों/अनौपचारिक पुनर्चक्रणकर्ता या ठोस अपशिष्ट प्रबंधन के लिए काम करने वाले विख्यात गैर सरकारी संगठन या सिविल सोसायटी का एक प्रतिनिधि	सदस्य

14.	राज्य या केन्द्रीय स्तर पर उद्योगों का प्रतिनिधित्व करने वाले निकाय का एक प्रतिनिधि	सदस्य
15.	अपशिष्ट पुनर्चक्रण उद्योग का एक प्रतिनिधि	सदस्य
16.	दो विषय विशेषज्ञ	सदस्य
17.	राज्य सरकार के राजस्व विभाग, कृषि विभाग और श्रम विभाग का सहयोजित एक प्रतिनिधि	सदस्य

(2) इन नियमों के क्रियान्वयन से संबंधित सभी विषयों, ठोस अपशिष्ट प्रबंध संबंधी राज्य की नीति तथा कार्यनीति की समीक्षा करने और इन नियमों के त्वरित और समुचित क्रियान्वयन के लिए आवश्यक उपाय करने के लिए राज्य सरकार को सलाह देने के लिए राज्य स्तरीय सलाहकार निकाय प्रत्येक छह माह में कम से कम एक बैठक करेगी।

(3) समीक्षा रिपोर्ट की प्रतियां आवश्यक कार्रवाई हेतु राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति को अग्रेषित की जाएंगी।

24. वार्षिक रिपोर्ट.- (1) सुविधा के प्रचालक द्वारा प्रत्येक वर्ष 30 अप्रैल को या इससे पूर्व प्ररूप III में स्थानीय निकाय को वार्षिक रिपोर्ट प्रस्तुत की जाएगी।

(2) स्थानीय नगरीय निकाय प्ररूप IV में अपनी वार्षिक रिपोर्ट राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण समिति और संबंधित राज्य या संघ राज्य क्षेत्र के शहरी विकास विभाग के प्रभारी सचिव या मेट्रोपालिटिन नगर की दशा में नगर पालिका प्रशासन के निदेशक या नगरपालिका प्रशासन के आयुक्त या राज्य के अन्य सभी स्थानीय निकायों के मामले में राज्य के स्थानीय निकायों प्रभारी अधिकारी को प्रत्येक वर्ष के 30 जून या उससे पहले अग्रेषित करेगी।

(3) यथास्थिति, प्रत्येक राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समिति, इन नियमों के क्रियान्वयन और अनुपालन न करने वाले स्थानीय निकायों पर की गई कार्रवाई की समेकित वार्षिक रिपोर्ट प्ररूप V में तैयार करेगी और प्रत्येक वर्ष के 31 जुलाई तक केंद्रीय प्रदूषण नियंत्रण बोर्ड और शहरी विकास मंत्रालय को प्रस्तुत करेगी।

(4) केंद्रीय प्रदूषण नियंत्रण बोर्ड, देश में स्थानीय निकायों द्वारा इन नियमों के क्रियान्वयन की स्थिति पर एक समेकित समीक्षा रिपोर्ट तैयार की जाएगी और शहरी विकास मंत्रालय और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को अपनी सिफारिशों के साथ प्रत्येक वर्ष 31 अगस्त से पहले अग्रेषित की जाएगी।

(5) पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय द्वारा केन्द्रीय निगरानी समिति की बैठक के दौरान वार्षिक रिपोर्ट का पुनर्विलोकन किया जाएगा।

25. दुर्घटना की रिपोर्ट देना - किसी ठोस अपशिष्ट प्रसंस्करण या सुविधा केंद्र या भराव भूमि स्थल पर कोई दुर्घटना होने की दशा में, तब सुविधा का प्रभारी अधिकारी प्ररूप VI में घटना की रिपोर्ट स्थानीय निकाय को भेजेगा। स्थानीय निकाय द्वारा समीक्षा की जाएगी और सुविधा के प्रभारी अधिकारी को अनुदेश, यदि कोई हो, जारी किया जाएगा।

अनुसूची I

[नियम 15 (ब),(यक्ष),16(1)(ख)(क.),16(4) देखें]

स्वास्थ्यकर भरण स्थलों के लिए विनिर्देश

क. स्थल चयन के लिए मानदंड. -

(i) भूमि निर्धारण के कार्य आसंदन में विभाग द्वारा ठोस अपशिष्ट प्रसंस्करण और शोधन सुविधाओं की स्थापना करने के लिए उपयुक्त स्थल उपलब्ध कराया जाएगा और ऐसे स्थलों को अधिसूचित किया जाएगा।

(ii) भूमि भरण स्थल योजनाबद्ध, तथा निर्माण योजना के साथ-साथ चरणबद्ध रीति से बंदी योजना के उचित प्रलेखन के साथ अभिकल्पित और विकसित किए जाएंगे। किसी विद्यमान भूमि भरण स्थल से लगी हुई कोई नई भूमि भरण सुविधा तैयार किए जाने की दशा में विद्यमान भूमि भरण स्थल की बंदी योजना, ऐसे नए भूमि भरण स्थल के प्रस्ताव का भाग होगी।

(iii) भरण स्थलों का चयन आसपास की अपशिष्ट प्रसंस्करण सुविधाओं का प्रयोग करने के लिए किया जाएगा। अन्यथा अपशिष्ट प्रसंस्करण सुविधा की योजना भरण स्थल के अभिन्न भाग के रूप में बनाई जाएगी।

(iv) भूमि भरण स्थल शहरी विकास मंत्रालय, भारत सरकार और केन्द्रीय प्रदूषण नियंत्रण बोर्ड के मार्गदर्शी सिद्धांतों के अनुसार स्थापित किए जाएंगे।

(v) विद्यमान भूमि भरण स्थल, जो पांच वर्षों से अधिक से उपयोग में हैं, इस अनुसूची में दिए गए विनिर्देशों के अनुसरण में उन्नत किए जाएंगे।

(vi) भूमि भरण स्थल कम से कम 20-25 वर्षों तक चलने के लिए पर्याप्त रूप से बड़े होंगे तथा जल अभाव और दुरूपयोग को रोकने के लिए चरणबद्ध रीति से "भूमि भरण सेल" विकसित किए जाएंगे।

(vii) भूमि भरण स्थल नदी से 100 मीटर, तालाब से 200 मीटर, राजमार्गों, आवास स्थलों, सार्वजनिक उद्यानों और जल आपूर्ति कुंओं से 200 मीटर तथा विमानपत्तनों या हवाई अड्डे से 20 किमी की दूरी पर होंगे। तथापि, विशेष मामले में, भूमि भरण स्थल को नागर विमानन प्राधिकरण/वायु सेना, जैसा भी मामला हो, से अनापत्ति प्रमाण पत्र प्राप्त कर लेने के बाद विमानपत्तन/हवाईअड्डे से 10 और 20 किमी की दूरी के अंदर स्थापित किया जा सकता है। तटीय विनियम जोन, नमभूमि, महत्वपूर्ण आवासीय क्षेत्रों, संवेदनशील पारि-संगुर क्षेत्रों और गत 100 वर्षों से यथा वर्ज बाढ़ के मैदानों के अंदर भूमि भरण स्थल के लिए अनुमति नहीं दी जाएगी।

(viii) भरण स्थल और ठोस अपशिष्ट के शोधन तथा निस्तारण के लिए स्थलों को नगर आयोजना विभाग की भूमि उपयोग योजनाओं में शामिल किया जाएगा।

(ix) पांच टन प्रतिदिन से अधिक की संस्थापित क्षमता वाली ठोस अपशिष्ट प्रसंस्करण तथा निस्तारण सुविधा के आसपास गैर विकास का बफर जोन बनाए रखा जाएगा। इसका अनुरक्षण ठोस अपशिष्ट प्रसंस्करण तथा निस्तारण सुविधा के कुल क्षेत्र के अंदर किया जाएगा। बफर जोन का निर्धारण स्थानीय प्राधिकरण द्वारा संबंधित राज्य प्रदूषण नियंत्रण बोर्ड के परामर्श से मामला दर मामला आधार पर किया जाएगा।

(x) जैव-चिकित्सीय अपशिष्ट का निपटान समय-समय पर यथा संशोधित जैव-चिकित्सीय अपशिष्ट प्रबंधन नियम, 2016 के अनुसार किया जाएगा। परिसंकटमय अपशिष्टों का प्रबंधन समय-समय पर यथासंशोधित परिसंकटमय और अन्य अपशिष्ट (प्रबंधन और सीमा-पारीय संचलन) नियम, 2016 के अनुसार किया जाएगा। ई-अपशिष्टों का प्रबंधन समय-समय पर यथासंशोधित ई-अपशिष्ट (प्रबंधन) नियम, 2016 के अनुसार किया जाएगा।

(xi) अपशिष्ट प्रसंस्करण का कार्य न हो पाने और आपातकाल या प्राकृतिक आपदाओं के दौरान अपशिष्ट को रखने के लिए प्रत्येक भरण स्थल पर ठोस अपशिष्ट के लिए अस्थाई भंडारण सुविधा स्थापित की जाएगी।

ख. स्वास्थ्यकर भरण स्थलों पर सुविधाओं के विकास के लिए मानदंड .-

(i) भूमि भरण स्थल पर चार-दीवारी या बाड़ होगी और अंदर आने वाले वाहनों की निगरानी करने, अनधिकृत व्यक्तियों तथा आवारा पशुओं के प्रवेश को रोकने के लिए उचित उपयुक्त दरवाजा लगाया जाएगा।

(ii) वाहनों और अन्य मशीनरी का मुक्त संचलन सुनिश्चित करने के लिए पहुंच और/आंतरिक सड़कें ठोस या पक्की बनाई जाएंगी ताकि वाहनीय संचलन के कारण धूल कणों को उड़ने से रोका जा सके।

(iii) भूमि भरण स्थल पर भूमि भरण के लिए लाए जाने वाले अपशिष्ट की मॉनीटरी करने के लिए अपशिष्ट निरीक्षण सुविधा, अभिलेख रखने के लिए कार्यालय सुविधा तथा प्रदूषण मॉनीटरी उपस्कर सहित उपस्कर और मशीनरी रखने के लिए आश्रय स्थल होंगे। सुविधा का प्रचालक अपशिष्ट प्राप्ति, प्रसंस्करण और निपटान का लेखा-जोखा रखेगा।

(iv) भूमि भरण स्थल पर लाए जाने वाले अपशिष्ट की मात्रा को मापने के लिए धर्मकांटा, अग्नि सुरक्षा उपस्कर और अन्य सुविधाएं, जो भी अपेक्षित हों, जैसे प्रावधान किए जाएंगे।

(v) पेयजल और स्वास्थ्य सुविधाओं (अधिमानत: कर्मकारों के लिए धोने/नहाने की सुविधाओं) जैसी उपयोगिताओं और सहज भूमि भरण प्रचालनों, जब रात्रि के समय किए जाते हैं, के लिए प्रकाश व्यवस्था का प्रावधान होगा।

(vi) भूमि भरण स्थलों पर कार्मिकों के स्वास्थ्य की जांच सहित सुरक्षा प्रावधान किए जाएंगे।

(vii) परिवहन वाहनों की पार्किंग और सफाई या धुलाई के लिए प्रावधान किए जाएंगे। इस प्रकार उत्पन्न मल जल का शोधन विनिर्दिष्ट मानकों को पूरा करने के लिए किया जाएगा।

ग. भूमि भरण प्रचालनों और भूमि भरण पूर्ण होने पर उनको बंद करने के विनिर्देशों के लिए मानदण्ड.-

(i) अपशिष्ट का उच्च घनत्व प्राप्त करने के लिए भूमि भरण किए जाने वाले अपशिष्ट को भारी कम्पेक्टरों का प्रयोग करते हुए पतली परतों में संहत किया जाएगा । अधिक वर्षा वाले क्षेत्रों, जहां भारी कम्पेक्टरों का प्रयोग नहीं किया जा सकता, में वैकल्पिक उपाय अपनाए जाएंगे।

(ii) अपशिष्टों को तत्काल या प्रत्येक कार्य दिवस के अंत में कम से कम 10 सेमी मिट्टी, अक्रिय मलबे या निर्माण सामग्री से उस समय तक ढक दिया जाएगा जब तक कि कम्पोस्टिंग या पुनर्चक्रण या ऊर्जा पुनर्प्राप्ति के लिए अपशिष्ट प्रसंस्करण सुविधाएं स्थापित न कर दी जाएं।

(iii) मानसून ऋतु के आरंभ होने से पूर्व भूमि भरण स्थल पर मानसून के दौरान पानी के रिसाव को रोकने के लिए उचित संहनन और श्रेणीकरण के साथ 40-65 सेमी मोटी मिट्टी का मध्यवर्ती आवरण बिछा दिया जाएगा। भूमि भरण स्थल के प्रभावी क्षेत्र से पानी के बहाव को विपथित करने के लिए उचित निकास नालियों का निर्माण किया जाएगा।

(iv) भूमि भरण स्थल के पूरा हो जाने के पश्चात उसके रिसाव और अपरदन को न्यूनतम करने के लिए अंतिम आवरण डिजाइन किया जाएगा। अंतिम आवरण निम्नलिखित विनिर्देशों के अनुसार होगा, अर्थात् -

(क) अंतिम आवरण में 1×10^{-7} सेमी/सेकंड से कम के पारगम्यता गुणांक सहित 60 सेमी की चिकनी मिट्टी या शोधित मिट्टी से युक्त अवरोधक मिट्टी की परत होगी।

(ख) अवरोधक मिट्टी की परत के ऊपर 15 सेमी की एक निकास परत होगी।

(ग) निकास परत के ऊपर प्रकृतिजन्य पादपों की वृद्धि में सहायता करने और अपरदन को कम करने के लिए 45 सेमी की एक वनस्पतिक परत होगी।

घ. **प्रदूषण निवारण के मानदंड.-** भूमि भरण प्रचालनों से प्रदूषण समस्याओं को रोकने के क्रम में निम्नलिखित प्रावधान किए जाएंगे, अर्थात्-

(I) तूफान जल नाले को इस तरीके से डिजाइन और निर्मित किया जाए कि सतही जल बहाव, भूमि भरण स्थल से विपथित हो जाए और ठोस अपशिष्ट स्थानों से निष्क्रालक, सतही जल बहाव में मिश्रित न हो। निक्षालक उत्पत्ति को कम करने और सतही जल के प्रदूषण को रोकने तथा बाढ़ और दलदली स्थितियों से बचने के लिए भी तूफान जल प्रवाह नालियों के विपथन का प्रावधान किया जाएगा।

(II) अपशिष्ट निपटान क्षेत्र के आधार और दीवारों पर गैर-पारगम्य लाइनिंग प्रणाली का निर्माण। ऐसी अपशिष्ट प्रसंस्करण सुविधाओं के अवशिष्ट अथवा मिश्रित अपशिष्ट या खतरनाक सामग्रियों (जैसे कि ऐरोसोल, ब्लीच, पालिश, बैटरी, अपशिष्ट तेल, पेंट उत्पाद और कीटनाशक) के संदूषण वाले अपशिष्ट को भरने के लिए प्रयुक्त होने वाले भरण स्थलों के लिए न्यूनतम लाइनर विनिर्देश, एक ऐसा मिश्र अवरोधक होगा जो 1.5 मिमी मोटी उच्च घनत्व वाली पॉलीईथाइलीन (एचडीपीई) जियो-मैम्ब्रेन या जियो-सिंथेटिक लाइनर या उसके समतुल्य होगा तथा मिट्टी (चिकनी अथवा शोधित मिट्टी) के 90 सेमी के ऊपर होगी तथा इसका पारगम्यता गुणांक 1x10-7 सेमी/सेकंड से अधिक नहीं होगा। जल सारणी का अधिकतम स्तर, भूमि भरण स्थलों के निचले भाग पर उपलब्ध कराई गई चिकनी अथवा शोधित मिट्टी के अवरोधक परत के आधार से कम से कम दो मीटर नीचे होगा।

(iii) निक्षालकों के संग्रहण और शोधन सहित इसके प्रबंधन के लिए प्रावधान किए जाएंगे । शोधित निक्षालक, अनुसूची-II में निर्दिष्ट मानकों को पूरा करने के पश्चात् पुनर्चक्रित या उपयोग में लाए जाएंगे। अन्यथा इन्हें गलनिर्यास लाइन में विमुक्त कर दिया जाएगा। किसी भी हाल में निक्षालक को खुले वातावरण में विमुक्त नहीं किया जाएगा।

(iv) भूमि भरण क्षेत्र से बहने वाले जल को किसी नाले, धारा, नदी, झील या तालाब में प्रवेश करने से रोकने की व्यवस्था की जाएगी। जल बहाव के निक्षालक या ठोस अपशिष्ट के साथ मिश्रित होने के मामले में, समस्त मिश्रित जल को संबंधित प्राधिकरण द्वारा शोधित किया जाएगा।

ङ. **जल गुणवत्ता मॉनीटरी के लिए मानदंड.-**

(i) किसी भूमि भरण स्थल को स्थापित करने से पूर्व, क्षेत्र में भूमि जल गुणवत्ता के मूलाधार आंकड़े एकत्रित किए जाएंगे और उन्हें भविष्य में संदर्भ के लिए रिकार्ड में रखा जाएगा। भूमि भरण स्थल की परिधि के 50 मीटर के अंदर भूमि जल गुणवत्ता को वर्ष में विभिन्न ऋतुओं अर्थात ग्रीष्म, मानसून और मानसून-पश्च अवधि के दौरान आवधिक रूप से मॉनीटर किया जाएगा ताकि यह सुनिश्चित हो सके कि भू- जल, स्वीकार्य सीमा से अधिक संदूषित न हो।

(ii) किसी भी प्रयोजन (पेय जल और सिंचाई सहित) के लिए भूमि भरण स्थलों में और उनके आस-पास भूमि जल के उपयोग पर उसकी गुणवत्ता को सुनिश्चित करने के बाद विचार किया जाएगा। मॉनीटरी प्रयोजन के लिए पेयजल गुणवत्ता हेतु निम्नलिखित विनिर्देश लागू होंगे, अर्थात् :-

क्र.सं.	पैरामीटर	आईएस 10500:2012, संस्करण 2.2 (2003-09) वांछनीय सीमा (मिग्रा/ली., पीएच को छोड़कर
(1)	(2)	(3)
(1)	आर्सेनिक	0.01
(2)	कैडमियम	0.01
(3)	क्रोमियम (Cr^{6+} के रूप में)	0.05
(4)	तांबा	0.05
(5)	साइनाइड	0.05
(6)	सीसा	0.05
(7)	पारा	0.001
(8)	निकल	-
(9)	नाइट्रेट, NO_3 के रूप में	45.0
(10)	पीएच (pH)	6.5-8.5
(11)	लोहा	0.3
(12)	कुल कठोरता ($CaCO_3$ के रूप में)	300.0
(13)	क्लोराइड	250
(14)	विलीन ठोस	500
(15)	फेनोलिक यौगिक (C_6H_5OH के रूप में)	0.001
(16)	जस्ता	5.0
(17)	सल्फेट (SO_4 के रूप में)	200

च. परिवेशी वायु गुणवत्ता की मानीटरी के लिए मानदंड. -

(i) भूमि भरण स्थल पर दुर्गंध को कम करने, गैसों को अपस्थलीय फैलने से रोकने, पुनर्वासित भूमि भरण स्थल सतह पर उगाई गई वनस्पति को बचाने के लिए गैस संग्रहण प्रणाली सहित भूमि भरण गैस नियंत्रण प्रणाली संस्थापित की जाएगी। भूमि भरण गैस पुनर्प्राप्ति को बढ़ाने के लिए गैस संग्रहण कुओं के साथ आच्छादन प्रणालियों में जियो मेम्ब्रेन के प्रयोग पर विचार किया जाएगा।

(ii) भूमि भरण स्थल पर निकलने वाली मीथेन गैस का सान्द्रण, निम्न विस्फोटक सीमा (एलईएल) के 25 प्रतिशत से अधिक नहीं होगा।

(iii) किसी भूमि भरण स्थल पर संग्रहण सुविधा से प्राप्त भूमि भरण गैस का उपयोग व्यवहार्यता के अनुसार या तो सीधे तापीय अनुप्रयोगों या विद्युत उत्पादन में किया जाएगा। अन्यथा, भूमि भरण गैस को जला (प्रदीप्त) दिया जाएगा और सीधे वायुमंडल में या अवैध रूप से निकासी के लिए नहीं छोड़ा जाएगा। यदि इसका उपयोग या प्रदीप्त संभव न हो तो निष्क्रिय निकास की अनुमति दी जाएगी।

(iv) भूमि भरण स्थल पर और इसके आसपास परिवेशी वायु गुणवत्ता के नियमित रूप से मॉनीटरी की जाएगी। परिवेशी वायु गुणवत्ता औद्योगिक क्षेत्र के लिए केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा विहित मानकों के अनुसार होगी।

छ. **भूमि भरण स्थल पर पौधरोपण के लिए मानदंड.-** तैयार स्थल के ऊपर निम्नलिखित विनिर्देशों के अनुसार वनस्पतिक आवरण बनाया जाएगा, अर्थात् :

(क) स्थानीय रूप में अंगीकृत अखाद्य बारहमासी पौधों, जो सूखे तथा अत्यधिक तापमान के प्रतिरोधी हैं, को उगाया जाएगा;

(ख) पौधे ऐसे प्रजाति के होंगे कि उनकी जड़ें 30 सेमी से अधिक गहरी न हों। यह शर्त, भूमि भरण स्थल के स्थिर होने तक लागू रहेगी;

(ग) चयनित पौधों में न्यूनतम पौषक वृद्धि के साथ स्यूत-पोषक मिट्टी में पनपने की क्षमता होगी;

(घ) मिट्टी के अपरदन को कम करने के लिए पर्याप्त घनत्व में पौधरोपण किया जाएगा;

(ङ) राज्य प्रदूषण नियंत्रण बोर्डों या प्रदूषण नियंत्रण समितियों के परामर्श से भूमि भरण स्थल की सीमा के चारों ओर हरित क्षेत्र विकसित किए जाएंगे।

ज. **भूमि भरण स्थल पर पश्चात्वर्ती देखरेख के लिए मानदंड.** – (1) भूमि भरण स्थल की बंदी-पश्च देखरेख कम से कम पंद्रह वर्षों के लिए की जाएगी और दीर्घकालिक मॉनीटरी या देखरेख योजना निम्नलिखित से युक्त होगी, अर्थात् :-

(क) सबसे ऊपरी परत की अखंडता और प्रभाविता को बनाए रखना, मरम्मत करते रहना तथा सबसे ऊपरी परत को अपरदन या अन्य प्रकार के नुकसान के जारी रहने और बहने को रोकना;

(ख) अपेक्षानुसार निक्षालक संग्रहण प्रणाली की मॉनीटरी करना;

(ग) भरण स्थल में और इसके आसपास भू-जल की मॉनीटरी करना;

(घ) मानकों के अनुरूप भूमि भरण गैस संग्रहण प्रणाली का अनुरक्षण और प्रचालन करना।

(2) पंद्रह वर्ष की बंदी-पश्च मॉनीटरी के बाद बंद पड़े भूमि भरण स्थलों के उपयोग पर मानव बस्ती या अन्यथा प्रयोग किए जाने के बारे में यह सुनिश्चित करने के बाद ही विचार किया जाएगा कि गैसीय उत्सर्जन और निक्षालक गुणवत्ता विश्लेषण, विनिर्दिष्ट मानकों के अनुपालन में हैं और मृदा स्थिरता सुनिश्चित की गई है।

झ. **पहाड़ी क्षेत्रों के लिए विशेष प्रावधानों हेतु मानदंड -** पहाड़ों पर बसे नगरों और शहरों में स्थानीय प्राधिकरण द्वारा संबंधित राज्य बोर्ड या प्रदूषण नियंत्रण समिति के अनुमोदन से ठोस अपशिष्ट के अंतिम निपटान के लिए विकसित की गई स्थान-विशिष्ट पद्धतियां अपनाई जाएंगी। नगरपालिका प्राधिकरण जैवअवक्रमणीय जैविक अपशिष्ट को उपयोगी बनाने के लिए प्रसंस्करण सुविधाएं स्थापित करेगा। गैर-जैवअवक्रमणीय पुनर्चक्रण योग्य सामग्रियों का भण्डारण किया जाएगा और

इन्हें पुनर्चक्रण के लिए आवधिक रूप से भेजा जाएगा। अक्रिय और गैर-जैवअवक्रमणीय अपशिष्ट का उपयोग, सड़कें बनाने या पहाड़ों पर उपयुक्त क्षेत्रों की भराई करने के लिए किया जाएगा। पहाड़ी क्षेत्रों में पर्याप्त भूमि प्राप्त करने में आ रही कठिनाईयों के कारण सड़क पर बिछाने या भराई के लिए उपयुक्त न पाए गए अपशिष्ट का निपटान मैदानी क्षेत्रों में क्षेत्रीय भरण स्थलों में किया जाएगा।

ञ. **पुराने मलबा स्थलों को बंद और बहाल करना** – ठोस अपशिष्ट के मलबा स्थल जिन्होंने अपनी क्षमता पूरी कर ली है या नए और उपयुक्त रूप से डिजाइन किए गए भरण स्थलों की स्थापना के बाद जिनमें अतिरिक्त अपशिष्ट नहीं डाले जाते हैं, उन्हें बंद कर दिया जाना चाहिए और निम्नलिखित विकल्पों की जांच करने के बाद बहाली की जानी चाहिए :

(i) जैव खनन और अपशिष्ट प्रसंस्करण द्वारा अपशिष्ट को कम करना जिसके बाद नए भरण स्थलों या नीचे (ii) के अनुसार आच्छादन में अवशिष्टों को रखा जाएगा।

(ii) ग्रीन हाऊस गैसों के संग्रहण और चमकाने/उपयोग में समर्थ बनाने के लिए ठोस अपशिष्ट आवरण या जियो मेम्ब्रेन से संवर्धित ठोस अपशिष्ट आवरण से आच्छादित किया जाना।

(iii) ऊपर (ii) के अनुसार अतिरिक्त उपायों (जलोढ़ और अन्य खुरदरी दानेदार मिट्टियों में) जैसे संदूषित भू-जल को निकालने और शोधित करने के लिए कट-ऑफ वॉल और निष्कर्षण कुओं में आच्छादन।

(iv) स्वीकार्य स्तर तक पर्यावरणीय प्रभाव को कम करने के लिए उपयुक्त कोई अन्य पद्धति।

अनुसूची II

[नियम 16(1), (ब), (ङ.),16(4) देखें]

ठोस अपशिष्ट के प्रसंस्करण और शोधन के मानक

क. **खाद के मानक.**- अपशिष्ट प्रसंस्करण सुविधाओं में जैव अवक्रमणीय अपशिष्ट के प्रसंस्करण हेतु प्रौद्योगिकियों में से एक के रूप में कंपोस्टिंग शामिल होगा। कंपोस्ट संयंत्र से होने वाले प्रदूषण को रोकने के उद्देश्य से निम्नलिखित का पालन किया जाएगा अर्थात् :

(क) स्थल पर पहुंचने वाले जैविक अपशिष्ट का आगे के प्रसंस्करण से पूर्व समुचित रखरखाव किया जाएगा। जहां तक संभव हो, अपशिष्ट भण्डारण क्षेत्र ढका हुआ होना चाहिए। यदि ऐसा भण्डारण खुले में किया गया हो तो निक्षालक शोधन और निपटान सुविधा तक पहुंचने वाले पंक्तिबद्ध नालों में निक्षालक और सतही जल बहाव को एकत्रित करने की सुविधा के साथ अपारगम्य आधार उपलब्ध कराया जाना चाहिए;

(ख) गंध, मक्खियों, कृंतकों, पक्षी के खतरे और आग के जोखिम की बाधा को कम करने के लिए आवश्यक सावधानियां बरती जाएंगी;

(ग) संयंत्र के ब्रेकडाउन या रखरखाव के मामले में, अपशिष्ट अंतर्ग्राही को बंद कर दिया जाएगा और अपशिष्ट को अस्थाई प्रसंस्करण स्थल या अस्थायी भूमि भरण स्थलों की दिशा में विपथित करने की व्यवस्था की जाएगी, जिनका संयंत्र के ठीक-ठाक हो जाने पर पुनःप्रसंस्करण किया जाएगा;

(घ) प्रसंस्करण सुविधा से प्रक्रिया पूर्व और प्रक्रिया-पश्च अवशिष्टों को नियमित आधार पर हटा दिया जाएगा और स्थल पर इकट्ठा नहीं होने दिया जाएगा। पुनर्चक्रण योग्य सामग्री, उपयुक्त विक्रेताओं के माध्यम से भेजी जाएगी। गैर-पुनर्चक्रण योग्य उच्च तापजनक अंशों को पृथक किया जाएगा और सीमेंट संयंत्रों में या विद्युत संयंत्रों को आरडीएफ उत्पादन, सह-प्रसंस्करण के लिए भेजा जाएगा। भूमि भरण स्थलों में केवल सभी प्रक्रियाओं के अवशिष्ट भेजे जाएंगे।

(ङ.) अपारगम्य आधार के साथ बिंड्रो क्षेत्र उपलब्ध कराया जाएगा। ऐसा आधार बजरी या ठोस चिकनी मिट्टी, 50 सेमी मोटी, जिसका पारगम्यता गुणांक 10^{-7} सेमी/सेकेंड से कम हो, का बनाया जाएगा। आधार में 1 से 2 प्रतिशत ढाल होगी और निक्षालक या सतही बहाव का संग्रहण करने के लिए इसकी चारों तरफ नालियों का घेरा होगा।

(च) परिवेशी वायु गुणवत्ता की नियमित रूप से मॉनीटरी की जाएगी। प्रसंस्करण संयंत्र की बाहरी दीवार पर या नीचे की हवा की दिशा में गंध की समस्या की भी नियमित रूप से जांच की जाएगी।

(छ) नमी बनाए रखने के लिए खाद संयंत्र में निक्षालक को पुन:परिचालित किया जाएगा।

(ज) अंतिम उत्पाद खाद, समय-समय पर अधिसूचित उर्वरक नियंत्रण आदेश के अंतर्गत विनिर्दिष्ट मानकों के अनुसार होगा।

(झ) खाद का सुरक्षित अनुप्रयोग सुनिश्चित करने हेतु खाद गुणवत्ता के लिए निम्नलिखित विनिर्देशों को पूरा किया जाएगा, अर्थात् :-

पैरामीटर	जैविक खाद (एफसीओ 2009)	फॉस्फेट संपन्न जैविक खाद (एफसीओ 2013)
(1)	(2)	(3)
आर्सेनिक (मिग्रा/किग्रा)	10.00	10.00
कैडमियम (मिग्रा/किग्रा)	5.00	5.00
क्रोमियम (मिग्रा/किग्रा)	50.00	50.00
तांबा (मिग्रा/किग्रा)	300.00	300.00
सीसा (मिग्रा/किग्रा)	100.00	100.00
पारा (मिग्रा/किग्रा)	0.15	0.15
निकल (मिग्रा/किग्रा)	50.00	50.00
जस्ता (मिग्रा/किग्रा)	1000.00	1000.00
सी/एन अनुपात	<20	20:1 से कम
पीएच (pH)	6.5-7.5	(1:5 घोल) अधिकतम 6.7
नमी, भार का प्रतिशत, अधिकतम	15.0-25.0	25.0
थोक घनत्व (ग्राम/सेमी^{3})	<1.0	1.6 से कम
कुल जैविक कार्बन, भार द्वारा प्रतिशत, न्यूनतम	12.0	7.9
कुल नाइट्रोजन (एन के रूप में), भार द्वारा प्रतिशत, न्यूनतम	0.8	0.4

कुल फॉस्फेट (पी2ओ5 के रूप में) भार द्वारा प्रतिशत, न्यूनतम	0.4	10.4
कुल पोटेशियम (के2ओ के रूप में), भार द्वारा प्रतिशत, न्यूनतम	0.4	-
रंग	गहरे भूरे से काले तक	-
गंध	बदबू की अनुपस्थिति	-
कण आकार	कम से कम 90% सामग्री, 4.0 मिमी आईएस छलनी से होकर गुजरनी चाहिए	कम से कम 90% सामग्री, 4.0 मिमी आईएस छलनी से होकर गुजरनी चाहिए
प्रवाहकत्व (डीएसएम-1 के रूप में), से कम	4.0	8.2

*उपरोक्त कथित संकेन्द्रण सीमाओं से अधिक खारी खाद (अंतिम उत्पाद) का उपयोग खाद्य फसलों के लिए नहीं किया जाएगा। तथापि, इनका उपयोग खाद्य फसलों को उगाने से भिन्न प्रयोजनों के लिए किया जा सकता है।

ख. **शोधित निक्षालकों के लिए मानक.** – शोधित निक्षालकों के निपटान में निम्नलिखित मानकों का पालन किया जाएगा, अर्थात्:-

क्र.सं.	मापदंड	मानक (निपटान का तरीका)		
		अंतर्देशीय सतही जल	सार्वजनिक सीवर	भूमि निपटान
(1)	(2)	(3)	(4)	(5)
1.	निलंबित ठोस, मिग्रा/ली, अधिकतम	100	600	200
2.	बिलीन ठोस (अजैविक), मिग्रा/ली, अधिकतम	2100	2100	2100
3.	पीएच (ph) मान	5.5 से 9.0	5.5 से 9.0	5.5 से 9.0
4.	अमोनिकल नाइट्रोजन (एन के रूप में) मिग्रा/ली., अधिकतम	50	50	--
5.	कुल केल्डाल नाइट्रोजन (एन के रूप में) मिग्रा/ली, अधिकतम	100	--	--

6.	जैव रासायनिक ऑक्सीजन मांग (27° से. पर 3 दिन) अधिकतम (मिग्रा/ली)	30	350	100
7.	रासायनिक ऑक्सीजन मांग, मिग्रा/ली, अधिकतम	250	—	--
8.	आर्सेनिक (एएस के रूप में), मिग्रा/ ली, अधिकतम	0.2	0.2	0.2
9.	पारा (एचजी के रूप में), मिग्रा/ली, अधिकतम	0.01	0.01	--
10.	सीसा (पीबी के रूप में), मिग्रा/ली, अधिकतम	0.1	1.0	--
11.	कैडमियम (सीडी के रूप में), मिग्रा/ली, अधिकतम	2.0	1.0	--
12.	कुल क्रोमियम (सीआर के रूप में), मिग्रा/ली, अधिकतम	2.0	2.0	--
13.	तांबा (सीयू के रूप में), मिग्रा/ली, अधिकतम	3.0	3.0	--
14.	जस्ता ((जेडएन के रूप में), मिग्रा/ली, अधिकतम	5.0	15	--
15.	निकल (एनआई के रूप में), मिग्रा/ली, अधिकतम	3.0	3.0	--
16.	साइनाइड (सीएन के रूप में), मिग्रा/ली, अधिकतम	0.2	2.0	0.2
17.	क्लोराइड (सीएल के रूप में), मिग्रा/ली, अधिकतम	1000	1000	600
18.	फ्लोराइड (एफ के रूप में), मिग्रा/ली, अधिकतम	2.0	1.5	--
19.	फेनोलिक यौगिक (C_6H_5OH के रूप में), मिग्रा/ली, अधिकतम	1.0	5.0	--

नोट : आंतरिक सतही जल-निकायों में शोधित निकासकों को बहाते समय, बहाए जाने वाले निकासकों की मात्रा और प्राप्त करने वाले जल निकाय में उपलब्ध मिश्रित जल की मात्रा पर उचित रूप से ध्यान दिया जाएगा।

ग. **भस्मीकरण के मानक :** ठोस अपशिष्ट शोधन/निपटान सुविधा में भस्मकों/ताप प्रौद्योगिकियों से होने वाले उत्सर्जन में निम्नलिखित मानकों का अनुपालन किया जाएगा, अर्थात् :

मानदण्ड	उत्सर्जन मानक	
(1)	(2)	(3)
विवित्त-कण	50 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एचसीएल	50 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एसओ2	200 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
सीओ	100 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
	50 मिग्रा/एनएम^3	मानक का अर्थ दैनिक औसत मान से है
कुल जैविक कार्बन	20 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एचएफ	4 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
एनओएक्स (एनओ2 के रूप में व्यक्त एनओ और एनओ2)	400 मिग्रा/एनएम^3	मानक का अर्थ आधे घंटे के औसत मान से है
कुल डाइऑक्सिन और फ्यूरन	0.1 एनजी टीईक्यू/एनएम^3	मानक का अर्थ 6-8 घंटे के नमूने से है। कृपया कुल विषाक्त समतुल्यता प्राप्त करने के लिए विषाक्त समतुल्यता मानों हेतु 17 संबंधित नमप्रकारी वस्तु के दिशानिर्देशों का संदर्भ लें।
सीडी+टीएच+उनके यौगिक	0.05 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
एचजी और इसके यौगिक	0.05 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
एसबी+एएस+पीबी+सीआर+ सीओ+सीयू+एमएन+एनआई+वी+ उनके यौगिक	0.5 एमजी/एनएम^3	मानक का अर्थ 30 मिनट और 8 घंटे के बीच कहीं भी नमूना लिए गए समय से है।
नोट : सभी मानों में शुष्क आधार पर 11% ऑक्सीजन तक शुद्धि की गई है।		

टिप्पणी :

(क) उपरोक्त उत्सर्जन सीमाओं को प्राप्त करने के लिए भस्मीकरण यंत्र के साथ उपयुक्त प्रकार के डिजाइन किए गए प्रदूषण नियंत्रण उपकरण संस्थापित या पुनःसंयोजित किए जाएंगे।

(ख) भस्मीकृत किए जाने वाले अपशिष्ट को किसी क्लोरीनयुक्त कीटाणुनाशक के साथ रासायनिक तरीके से शोधित नहीं किया जाएगा।

(ग) क्लोरीनयुक्त प्लास्टिक के भस्मीकरण को दो वर्षों के अंदर क्रमबद्ध रूप से समाप्त किया जाएगा।

(घ) यदि भस्मीकरण राख में विषाक्त धातुओं की सांद्रता समय-समय पर यथासंशोधित परिसंकटमय अपशिष्ट (प्रबंधन, हथालन और सीमा-पारीय संचलन) नियम, 2008 में यथाविनिर्दिष्ट सीमाओं से अधिक हो तो ऐसे राख को परिसंकटमय अपशिष्ट शोधन, भंडारण और निपटान सुविधा को भेजा जाएगा।

(ङ) भस्मीकरण-यंत्र में ईंधन के रूप में केवल एलडीओ, एलएसएचएस, डीजल, बायोमास, कोयला, एलएनजी, सीएनजी, आरडीएफ और बायोगैस जैसे निम्न सल्फर ईंधन का ही प्रयोग किया जाएगा।

(च) अधोवायु गैस में सीओ2 संकेन्द्रण 7% से अधिक नहीं होगा।

(छ) ट्विन चैम्बर भस्मीकरण-यंत्रों में सभी सुविधाएं इस प्रकार से डिजाइन की जाएंगी कि द्वितीय ज्वलन चैम्बर में 950° से. के न्यूनतम तापमान को प्राप्त करने के लिए और 2 (दो) सेकंड से अधिक के द्वितीय ज्वलन चैम्बर में गैस रह सके।

(ज) भस्मीकरण संयंत्र (दहन चैम्बर) ऐसे तापमान, अवधारण समय और विक्षोभ के साथ परिचालित किए जाएंगे ताकि लावा और तलहटी राखों में कुल जैविक कार्बन (टीओसी) तत्व को 3% से कम किया जा सके या प्रज्वलन पर उनकी क्षति सूखे वजन के 5% से कम हो।

(झ) स्थलों से निकलने वाली गंध का प्रबंधन केन्द्रीय प्रदूषण नियंत्रण बोर्ड द्वारा समय-समय पर जारी मार्गदर्शी सिद्धांतों के साथ किया जाएगा।

प्ररूप -I

[नियम 15 (ग), 16(1)(ग), 21(3) देखें]

ठोस अपशिष्ट के प्रसंस्करण/पुनर्चक्रण/शोधन और निपटान के लिए

ठोस अपशिष्ट प्रबंधन नियमों के अंतर्गत प्राधिकार प्राप्त करने के लिए आवेदन

सेवा में,

..... के

सदस्य सचिव

राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति

महोदय,

मैं/हम ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण, शोधन और निपटान के लिए ठोस अपशिष्ट नियम, 2016 के अंतर्गत प्राधिकार के लिए एतद्द्वारा आवेदन करता हूँ/करते हैं।

1.	उनके/सुविधा के प्रचालक द्वारा नियुक्त स्थानीय निकाय/अभिकरण का नाम	
2.	पत्राचार का पता दूरभाष सं. फैक्स सं.	

	ई-मेल	
3.	नोडल अधिकारी और पदनाम (प्रसंस्करण/शोधन या निपटान सुविधा के प्रचालन के लिए उत्तरदायी स्थानीय निकाय या अभिकरण द्वारा प्राधिकृत अधिकारी)	
4.	सुविधा की स्थापना करने और प्रचालन के लिए अपेक्षित प्राधिकार (कृपया निशान लगाएं)	i. अपशिष्ट प्रसंस्करण ii. पुनर्चक्रण iii. शोधन iv. भूमि भरण स्थल पर निपटान
5.	इन दस्तावेजों की प्रतियां संलग्न करें	i. स्थल स्वीकृति (स्थानीय प्राधिकरण) ii. पर्यावरणीय स्वीकृति का प्रमाण iii. स्थापना के लिए अनुमति iv. नगरपालिका प्राधिकरण और प्रचालन अभिकरण के बीच करार v. परियोजना में निवेश और अपेक्षित आय
6.	**ठोस अपशिष्ट का प्रसंस्करण/पुनर्चक्रण/शोधन** i. प्रतिदिन प्रसंस्करित अपशिष्ट की कुल मात्रा क) पुनर्चक्रित किए जाने वाले अपशिष्ट की मात्रा ख) शोधित किए जाने वाले अपशिष्ट की मात्रा ग) भूमिभरण स्थल में निपटाए जाने वाले अपशिष्ट की मात्रा ii. प्रसंस्करित अपशिष्ट के लिए उपयोगिता कार्यक्रम (उत्पाद उपयोग) iii. निपटान के लिए कार्य-पद्धति (ब्यौरा संलग्न करें) क) निक्षालक की मात्रा ख) निक्षालक के लिए शोधन प्रौद्योगिकी iv. पर्यावरणीय प्रदूषण के निवारण और नियंत्रण के लिए किए जाने वाले उपाय v. संयंत्र में कार्यरत कर्मकारों की सुरक्षा के लिए किए जाने वाले उपाय vi. ठोस अपशिष्ट प्रसंस्करण/पुनर्चक्रण/शोधन/	

	निपटान सुविधा संबंधी ब्यौरा (संलग्न किया जाए)	
7.	**ठोस अपशिष्ट का निपटान** अभिज्ञात स्थलों की संख्या प्रतिदिन निपटाए जाने वाले अपशिष्ट की मात्रा स्थल चयन के लिए अपनाई गई कार्य-पद्धति या मानदण्ड का ब्यौरा (संलग्न करें) प्रचालन के अंतर्गत विद्यमान स्थल का ब्यौरा भूमि भरण की कार्य-पद्धति और प्रचालनात्क ब्यौरा पर्यावरणीय प्रदूषण को रोकने के लिए किए गए उपाय	
8.	कोई अन्य सूचना	

हस्ताक्षर :.....

पदनाम .....

तारीख :

स्थान :

प्ररूप-II

[नियम 15(1)(ङ.) देखें]

प्राधिकार जारी करने के लिए प्रपत्र

फाइल सं. : _____

दिनांक : _____

प्राधिकार सं. : _____

सेवा में,

_____

_____

_____

संदर्भ : आपका आवेदन सं. _____ दिनांक _____

_____ राज्य प्रदूषण नियंत्रण बोर्ड/प्रदूषण नियंत्रण समिति द्वारा प्रस्ताव का परीक्षण करने के पश्चात _____ को जिनका प्रशासनिक कार्यालय _____ में है, पर अपशिष्ट प्रसंस्करण/पुनर्चक्रण/शोधन/ निपटान सुविधा स्थापित और प्रचालित करने के लिए प्राधिकृत किया जाता है।

यह प्राधिकार ठोस अपशिष्ट के प्रसंस्करण, पुनर्चक्रण, शोधन और निपटान के लिए सुविधा के प्रचालन हेतु प्रदान किया जाता है।

यह प्राधिकार नीचे उल्लिखित नियंत्रण एवं शर्तों और इन नियमों में अन्यथा यथानिर्दिष्ट ऐसी शर्तों और इन नियमों के अंतर्गत अनुसूचियों I और II में विनिर्धारित मानकों के अध्यधीन है।

_____ राज्य प्रदूषण नियंत्रण बोर्ड/संघ राज्य क्षेत्र प्रदूषण नियंत्रण समिति द्वारा किसी भी समय, प्राधिकार के अंतर्गत लागू किसी शर्त को रद्द किया जा सकता है और इसकी लिखित सूचना दी जाएगी।

ठोस अपशिष्ट प्रबंधन नियम, 2016 के उपबंध का उल्लंघन होने पर पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) के दंडात्मक उपबंध लागू होंगे।

दिनांक :

स्थान :

(सदस्य सचिव)

राज्य प्रदूषण नियंत्रण बोर्ड/संघ राज्य क्षेत्र

प्रदूषण नियंत्रण समिति

(हस्ताक्षर और पदनाम)

प्ररूप-III

[नियम 19(6), 24(1) देखें]

सुविधा के प्रचालक द्वारा स्थानीय निकाय को प्रस्तुत किए जाने के लिए वार्षिक रिपोर्ट का प्रपत्र

1.	शहर/नगर का नाम	
2.	जनसंख्या	
3.	क्षेत्रफल वर्ग किलो मीटर में	
4.	सुस्थानीय निकाय का नाम और पता दूरभाष सं. फैक्स ई-मेल :	
5.	सुविधा के प्रचालक का नाम और पता	
6.	सुविधा के प्रभारी अधिकारी का नाम दूरभाष सं. फैक्स ई-मेल :	

7.	शहर/नगर में परिवारों की संख्या शहर में गैर आवासीय परिसरों की संख्या शहर/नगर में चुनाव/प्रशासनिक वार्डों की संख्या	
8.	ठोस अपशिष्ट की मात्रा	
	प्रति दिन स्थानीय निकाय के क्षेत्र में उत्पन्न ठोस अपशिष्ट की अनुमानित मात्रा मीट्रिक टन में	/टीपीडी
	प्रतिदिन संग्रहित ठोस अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन संग्रहित प्रति व्यक्ति अपशिष्ट	/ग्रा./दिन
	प्रसंस्कृत ठोस अपशिष्ट की मात्रा	/टीपीडी
	भरण स्थल पर निपटान किए गए ठोस अपशिष्ट की मात्रा	/टीपीडी
9.	ठोस अपशिष्ट प्रबंधन सेवा की स्थिति	
	स्रोत पर अपशिष्ट का पृथक्करण और भंडारण	हां/नहीं
	क्या घरेलू/वाणिज्यिक/संस्थागत विनों में स्रोत पर ठोस अपशिष्ट का भंडारण किया जाता है, यदि हां	%
	घरेलू विनों में स्रोत पर अपशिष्ट के भंडारण की घरेलू रीति की प्रतिशतता	%
	वाणिज्यिक/संस्थागत विनों में स्रोत पर अपशिष्ट का गैर आवासीय परिसरों में भंडारण करने की प्रतिशतता	%
	गलियों में घरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	गलियों में गैर आवासीय परिसरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	क्या ठोस अपशिष्ट को स्रोत पर पृथक्कृत स्वरूप में भंडारित किया जाता है	हां/नहीं
	यदि हां, तो स्रोत पर अपशिष्ट का पृथक्करण करने वाले परिसरों की प्रतिशतता	%
	ठोस अपशिष्ट का घर-घर जाकर संग्रहण	
	क्या शहर/नगर में ठोस अपशिष्ट का घर-घर जाकर संग्रहण किया जाता है	हां/नहीं
	यदि हां, तो अपशिष्ट के घर-घर जाकर संग्रहण किए जाने में शामिल वार्डों की संख्या	
	शामिल किए गए घरों की संख्या	
	शामिल किए गए वाणिज्यिक संस्थाएनाओं, होटलों, रेस्तराओं, शैक्षिक संस्थाओं/कार्यालय इत्यादि सहित गैर आवासीय परिसरों की संख्या	
	निम्न के माध्यम से घर-घर जाकर संग्रहण किए जाने में शामिल आवासीय और गैर आवासीय परिसरों की प्रतिशतता : मोटरकृत वाहन कंटेनरकृत तिपहिया साइकिल/हैंड कार्ट अन्य साधन	

		% % %
	यदि नहीं, तो संग्रहण में अपनाई गई प्राथमिक पद्धति	
	गलियों में झाड़ू लगाया जाना	
	शहर में सड़कों, गलियों, लेनों, बाइलेनों की लम्बाई जिनकी सफाई किए जाने की आवश्यकता है	कि.मी.
	गली में झाड़ू लगाए जाने की बारंबारता और लाभान्वित जनसंख्या की प्रतिशतता	

बारंबारता	रोजाना	एकांतर दिवस पर	सप्ताह में दो बार	कभी-कभी
लाभान्वित जनसंख्या की प्रतिशतता				

	प्रयुक्त साधन हाथ से झाड़ू लगाया जाना यांत्रिक रूप से झाड़ू लगाया जाना	% %
	क्या सफाई कर्मचारियों द्वारा लंबी हैंडल वाले झाड़ू का प्रयोग किया जाता है	हां/नहीं
	क्या प्रत्येक सफाई कर्मचारी को अपशिष्ट का संग्रहण करने के लिए हैंडकार्ट/तिपहिया साइकिल दी जाती है	हां/नहीं
	क्या हैंडकार्ट/तिपहिया साइकिल में कंटेनर लगा है	हां/नहीं
	क्या संग्रहण का साधन प्रयोग किए गए संग्रहण/अपशिष्ट भंडारण के कंटेनरों समकालिक है	हां/नहीं
	द्वितीयक अपशिष्ट भंडारण सुविधाएं	
	शहर/नगर में अपशिष्ट भंडारण डिपो की संख्या और प्रकार खुले अपशिष्ट भंडारण स्थल चिनाई किए गए बिन	संख्या क्षमता घन मीटर में

	सीमेंट कंक्रीट सिलिंडर के बिन ढलाव/ढके हुए कक्ष/स्थान ढके हुए धातु/प्लास्टिक के कंटेनर 1.1 घन मीटर तक के बिन 2 से 5 घन मीटर के बिन 5 घन मीटर से बड़े कंटेनर बिन रहित शहर		
	बिन/जनसंख्या अनुपात		
	अपशिष्ट भंडारण डिपो का वार्डवार विवरण (संलग्न करें) : वार्ड सं. : क्षेत्रफल : जनसंख्या : रखे हुए बिनों की संख्या रखे गए बिनों का कुल आयतन		
	अपशिष्ट भंडारण सुविधाओं की कुल भंडारण क्षमता घन मीटर में		
	अपशिष्ट भंडारण डिपो में प्रतिदिन वास्तविक रूप से भंडारित कुल अपशिष्ट		
	डिपो से अपशिष्ट के संग्रहण की बारंबारता बताएं साफ किए गए बिनों की संख्या	बारंबारता	बिनों की संख्या
		प्रतिदिन	
		एकांतर दिवस	
		सप्ताह में दो बार	
		सप्ताह में एक बार	
		कभी-कभी	
	क्या भंडारण डिपो में पृथक्कृत अपशिष्ट को हरे, नीले और काले बिनों में भंडार करके रखने की सुविधा है	हां/नहीं (यदि हां तो विवरण दें) हरे बिनों की संख्या : नीले बिनों की संख्या : काले बिनों की संख्या :	
	भंडारण डिपो से ठोस अपशिष्ट उठाने का कार्य हाथ से किया जाता है		

	या यांत्रिक तरीके से? प्रतिशत बताएं ठोस अपशिष्ट को हाथ से उठाए जाने की प्रतिशतता यांत्रिक तरीके से उठाने की प्रतिशतता	 % %
	यदि यांत्रिक है तो प्रयुक्त पद्धति का स्पष्ट उल्लेख करें	फ्रंट-एंड लोडर/टॉप लोडर
	क्या ठोस अपशिष्ट को घर-घर से उठाया जाता है और पृथक्कृत स्वरूप में सीधे शोधन संयंत्र तक भेजा जाता है	हां/नहीं (यदि हां तो स्पष्ट उल्लेख करें)
	प्रतिदिन अपशिष्ट का परिवहन प्रयोग किए गए वाहनों का प्रकार और संख्या (कृपया टिक करें या जोड़ें)	अपशिष्ट का परिवहन करने में लगाए गए फेरों की संख्या
	पशु गाड़ी ट्रैक्टर नॉन टीपिंग ट्रक टीपिंग ट्रक डम्पर प्लेसर अवशिष्ट संग्राहक कम्पैक्टर अन्य जेसीबी - लोडर	
	अपशिष्ट के परिवहन की बारंबारता	बारंबारता — परिवहन किए गए अपशिष्ट का प्रतिशत प्रतिदिन एकांतर दिवस पर सप्ताह में दो बार सप्ताह में एक बार कभी-कभी
	प्रत्येक दिन परिवहन किए गए अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन परिवहन किए गए कुल अपशिष्ट की प्रतिशतता	%
	प्रयोग की गई अपशिष्ट शोधन प्रौद्योगिकियां	
	क्या ठोस अपशिष्ट का प्रसंस्करण किया जाता है	हां/नहीं

	यदि हां, तो प्रतिदिन प्रसंस्करण किए गए अपशिष्ट की मात्रा	/टीपीडी
	अपशिष्ट प्रसंस्करण के लिए स्थानीय निकाय के पास उपलब्ध भूमि (हेक्टेयर में)	
	अपशिष्ट प्रसंस्करण के लिए वर्तमान में प्रयुक्त भूमि	
	प्रचालनरत ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	निर्माणाधीन ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	शहर/नगर की सीमा से प्रसंस्करण सुविधाओं की दूरी	
	अपनाई गई प्रौद्योगिकियों का विवरण	
	कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	वर्मी कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	बायो-मिथेनेशन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अवशिष्ट जनित ईंधन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अपशिष्ट से ऊर्जा प्रौद्योगिकी जैसे कि भस्मीकरण, गैसीकरण, पाइरोलेसिस या कोई अन्य प्रौद्योगिकी (विवरण दें)	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	सह-प्रसंस्करण	प्रसंस्करण की गई कच्ची सामग्री
	सीमेंट संयंत्र को आपूर्तित दहनशील अपशिष्ट	

	ठोस अपशिष्ट आधारित विद्युत संयंत्रों को आपूर्तित दहनशील अपशिष्ट	
	अन्य	मात्रा
	ठोस अपशिष्ट निपटान सुविधाएं	
	स्थानीय निकाय के पास उपलब्ध मलवा स्थलों की संख्या	
	स्थानीय निकाय के पास उपलब्ध स्वास्थ्यकर भरण स्थलों की संख्या	
	अपशिष्ट के निपटान हेतु उपलब्ध ऐसे प्रत्येक स्थल का क्षेत्रफल	
	अपशिष्ट के निपटान के लिए वर्तमान में प्रयुक्त भूमि का क्षेत्रफल	
	शहर/नगर से मलवा स्थल/भरण सुविधा की दूरी	कि.मी.
	निकटतम बसावट से दूरी	कि.मी.
	जल निकाय से दूरी	कि.मी.
	राज्य/राष्ट्रीय राजमार्ग से दूरी	कि.मी.
	विमानपत्तन से दूरी	कि.मी.
	महत्वपूर्ण धार्मिक स्थलों या ऐतिहासिक स्मारक से दूरी	कि.मी.
	क्या यह बाढ़ संभावित क्षेत्र में पड़ता है	हां/नहीं
	क्या यह भूकंप संभावित क्षेत्र में पड़ता है	हां/नहीं
	प्रत्येक दिन भरण में डाले गए अपशिष्ट की मात्रा	टीपीडी
	क्या भरण स्थल को घेरा गया है	हां/नहीं
	क्या स्थल पर रोशनी की सुविधा उपलब्ध है	हां/नहीं
	क्या धर्मकांटा सुविधा उपलब्ध है	हां/नहीं
	भरण स्थल पर प्रयुक्त वाहन और उपकरण (स्पष्ट करें)	उपलब्ध बुलडोजर, कम्पैक्टर इत्यादि
	भरण स्थल पर नियोजित जनशक्ति	हां/नहीं (यदि हां तो विवरण संलग्न करें)
	क्या ढकने का काम दैनिक आधार पर किया जाता है	हां/नहीं
	यदि नहीं, तो भरण स्थल पर जमा अपशिष्ट को ढकने की बारंबारता	
	ढकने के लिए प्रयुक्त सामग्री	
	क्या ढकने की पर्याप्त सामग्री उपलब्ध है	हां/नहीं
	क्या गैस निकालने की व्यवस्था की गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
	निक्षालन संग्रहण का प्रावधान	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
10.	क्या शहर में ठोस अपशिष्ट प्रबंधन पद्धतियों में सुधार लाने के लिए	हां/नहीं

	कार्ययोजना बनाई गई है	(यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
11.	निम्न के लिए कौन से पृथक प्रावधान किए गए हैं :	प्रस्तावों, उठाए गए कदमों के संबंध में विवरण संलग्न करें
	डेयरी से संबंधित कार्यकलाप :	
	बूचड़खाने के अपशिष्ट :	हां/नहीं
	निर्माण एवं विध्वंस अपशिष्ट (निर्माण मलबा) :	हां/नहीं
		हां/नहीं
12.	पशु संवृत्ति योजना का विवरण	योजना संलग्न करें
13.	कितनी मलिन बस्तियों का निर्धारण किया गया है और क्या इनमें ठोस अपशिष्ट प्रबंधन सुविधाएं उपलब्ध कराई गई हैं :	हां/नहीं (यदि हां, तो विवरण संलग्न करें)
14.	गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए ठेकेदार/रियायतग्राही की नियोजित जनशक्ति का विवरण दें	
15.	इन नियमों के प्रावधानों का अनुपालन करने में स्थानीय निकाय द्वारा महसूस की जा रही कठिनाइयों का संक्षेप में उल्लेख करें	
16.	ठोस अपशिष्ट से संबंधित समस्या से निपटने के लिए किसी अभिनव विचार का संक्षेप में उल्लेख करें जिसे अन्य स्थानीय निकायों द्वारा अपनाया जा सके	

प्रचालक के हस्ताक्षर

तारीख :

स्थान :

प्ररूप-IV

[नियम 15 (यक), 24(2) देखें]

स्थानीय निकाय द्वारा प्रस्तुत किए जाने के लिए ठोस अपशिष्ट प्रबंधन संबंधी

वार्षिक रिपोर्ट का प्रारूप

कैलेंडर वर्ष	रिपोर्ट प्रस्तुत करने की तारीख

1.	शहर/नगर का नाम	
2.	जनसंख्या	
3.	क्षेत्रफल वर्ग किलो मीटर में	
4.	स्थानीय निकाय का नाम और पता दूरभाष सं. फैक्स ई-मेल :	
5.	ठोस अपशिष्ट प्रबंधन (सैस्टैम) से संबंधित प्रभारी अधिकारी का नाम दूरभाष सं. फैक्स ई-मेल :	
6.	शहर/नगर में परिवारों की संख्या शहर में गैर आवासीय परिसरों की संख्या शहर/नगर में चुनाव/प्रशासनिक वार्डों की संख्या	
7.	ठोस अपशिष्ट की मात्रा	
	प्रति दिन स्थानीय निकाय के क्षेत्र में उत्पन्न ठोस अपशिष्ट की अनुमानित मात्रा मीट्रिक टन में	/टीपीडी
	प्रतिदिन संग्रहित ठोस अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन संग्रहित प्रति व्यक्ति अपशिष्ट	/ग्रा./दिन
	प्रसंसकृत ठोस अपशिष्ट की मात्रा	/टीपीडी
	मलबा स्थल/भराव स्थल पर निपटान किए गए ठोस अपशिष्ट की मात्रा	/टीपीडी
8.	ठोस अपशिष्ट प्रबंधन सेवा की स्थिति	
	स्रोत पर अपशिष्ट का पृथक्करण और भंडारण	
	क्या घरेलु/वाणिज्यिक/संस्थागत विनों में स्रोत पर ठोस अपशिष्ट का भंडारण किया जाता है, यदि हां	हां/नहीं

	घरेलू बिनों में स्रोत पर अपशिष्ट के भंडारण की घरेलू रीति की प्रतिशतता	%
	वाणिज्यिक/संस्थागत बिनों में स्रोत पर अपशिष्ट का गैर आवासीय परिसरों में भंडारण करने की प्रतिशतता	%
	गलियों में घरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	गलियों में गैर आवासीय परिसरों के ठोस अपशिष्ट का निपटान करने या फेंकने की प्रतिशतता	%
	ठोस अपशिष्ट का घर-घर जाकर संग्रहण	
	क्या शहर/नगर में ठोस अपशिष्ट का घर-घर जाकर संग्रहण किया जाता है	हां/नहीं
	यदि हां, तो अपशिष्ट के घर-घर जाकर संग्रहण किए जाने में शामिल वार्डों की संख्या	
	शामिल किए गए घरों की संख्या	
	शामिल किए गए वाणिज्यिक संस्थापनाओं, होटलों, रेस्तराओं, शैक्षिक संस्थाओं/कार्यालय इत्यादि सहित गैर आवासीय परिसरों की संख्या	
	निम्न के माध्यम से घर-घर जाकर संग्रहण किए जाने में शामिल आवासीय और गैर आवासीय परिसरों की प्रतिशतता : मोटरकृत वाहन कंटेनरकृत तिपहिया साइकिल/हैंड कार्ट अन्य साधन	 % % %
	यदि नहीं, तो संग्रहण में अपनाई गई प्राथमिक पद्धति	
	गलियों में झाड़ू लगाया जाना	
	शहर में सड़कों, गलियों, लेनों, बाइलेनों की लम्बाई जिनकी सफाई किए जाने की आवश्यकता है	कि.मी.
	गली में झाड़ू लगाए जाने की बारंबारता और लाभान्वित जनसंख्या की प्रतिशतता	

बारंबारता	रोजाना	एकांतर दिवस पर	सप्ताह में दो बार	कभी-कभी
लाभान्वित जनसंख्या की प्रतिशतता				

	प्रयुक्त साधन हाथ से झाड़ू लगाया जाना यांत्रिक रूप से झाड़ू लगाया जाना	 % %

	क्या सफाई कर्मचारियों द्वारा लंबी हैंडल वाले झाड़ू का प्रयोग किया जाता है	हां/नहीं
	क्या प्रत्येक सफाई कर्मचारी को अपशिष्ट का संग्रहण करने के लिए हैंडकार्ट/तिपहिया साइकिल दी जाती है	हां/नहीं
	क्या हैंडकार्ट/तिपहिया साइकिल में कंटेनर लगा है	हां/नहीं
	क्या संग्रहण का साधन प्रयोग किए गए संग्रहण/अपशिष्ट भंडारण के कंटेनरों समकालिक है	हां/नहीं
	द्वितीयक अपशिष्ट भंडारण सुविधाएं	
	शहर/नगर में अपशिष्ट भंडारण डिपो की संख्या और प्रकार खुले अपशिष्ट भंडारण स्थल चिनाई किए गए बिन सीमेंट कंक्रीट सिलिंडर के बिन ढलाव/ढके हुए कक्ष/स्थान ढके हुए धातु/प्लास्टिक के कंटेनर 1.1 घन मीटर तक के बिन 2 से 5 घन मीटर के बिन 5 घन मीटर से बड़े कंटेनर बिन रहित शहर	संख्या क्षमता घन मीटर में
	बिन/जनसंख्या अनुपात	
	अपशिष्ट भंडारण डिपो का वार्डवार विवरण (संलग्न करें) : वार्ड सं. : क्षेत्रफल : जनसंख्या : रखे हुए बिनों की संख्या रखे गए बिनों का कुल आयतन	
	अपशिष्ट भंडारण सुविधाओं की कुल भंडारण क्षमता घन मीटर में	
	अपशिष्ट भंडारण डिपो में प्रतिदिन वास्तविक रूप से भंडारित कुल अपशिष्ट	

	डिपो से अपशिष्ट के संग्रहण की बारंबारता बताएं साफ किए गए बिनों की संख्या	बारंबारता	बिनों की संख्या
		प्रतिदिन	
		एकांतर दिवस	
		सप्ताह में दो बार	
		सप्ताह में एक बार	
		कभी-कभी	
	क्या भंडारण डिपो में पृथककृत अपशिष्ट को हरे, नीले और काले बिनों में भंडार करके रखने की सुविधा है	हां/नहीं (यदि हां तो विवरण दें) हरे बिनों की संख्या : नीले बिनों की संख्या : काले बिनों की संख्या :	
	भंडारण डिपो में ठोस अपशिष्ट उठाने का कार्य हाथ से किया जाता है या यांत्रिक तरीके से? प्रतिशत बताएं ठोस अपशिष्ट को हाथ से उठाए जाने की प्रतिशतता यांत्रिक तरीके से उठाने की प्रतिशतता	% %	
	यदि यांत्रिक है तो प्रयुक्त पद्धति का स्पष्ट उल्लेख करें	फ्रंट-एंड लोडर/टॉप लोडर	
	क्या ठोस अपशिष्ट को घर-घर से उठाया जाता है और पृथककृत स्वरूप में सीधे शोधन संयंत्र तक भेजा जाता है	हां/नहीं (यदि हां तो स्पष्ट उल्लेख करें)	
	प्रतिदिन अपशिष्ट का परिवहन प्रयोग किए गए वाहनों का प्रकार और संख्या	अपशिष्ट का परिवहन करने में लगाए गए फेरों की संख्या	

	पशु गाड़ी ट्रैक्टर नॉन टीपिंग ट्रक टीपिंग ट्रक हम्पर प्लेसर अपशिष्ट संग्राहक कम्पैक्टर अन्य जेसीबी –लोडर	
	अपशिष्ट के परिवहन की बारंबारता	बारंबारता परिवहन किए गए अपशिष्ट का प्रतिशत प्रतिदिन एकांतर दिवस पर सप्ताह में दो बार सप्ताह में एक बार कभी-कभी
	प्रत्येक दिन परिवहन किए गए अपशिष्ट की मात्रा	/टीपीडी
	प्रतिदिन परिवहन किए गए कुल अपशिष्ट की प्रतिशतता	%
	प्रयोग की गई अपशिष्ट शोधन प्रौद्योगिकियां	
	क्या ठोस अपशिष्ट का प्रसंस्करण किया गया है	हां/नहीं
	यदि हां, तो प्रतिदिन प्रसंस्करण किए गए अपशिष्ट की मात्रा	/टीपीडी
	क्या शोधन का कार्य स्थानीय निकाय या किसी अभिकरण के माध्यम से किया जाता है	
	अपशिष्ट प्रसंस्करण के लिए स्थानीय निकाय के पास उपलब्ध भूमि (हेक्टेयर में)	
	अपशिष्ट प्रसंस्करण के लिए वर्तमान में प्रयुक्त भूमि	
	प्रचालनरत ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	निर्माणाधीन ठोस अपशिष्ट प्रसंस्करण सुविधाएं	
	शहर/नगर की सीमा से प्रसंस्करण सुविधाओं की दूरी	

	अपनाई गई प्रौद्योगिकियों का विवरण	
	कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	वर्मी कंपोस्टिंग	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	बायो-मिथेनेशन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	अवशिष्ट अनित ईंधन	प्रसंस्करण की गई कच्ची सामग्री की मात्रा उत्पन्न किए गए अंतिम उत्पाद की मात्रा बेची गई मात्रा भरण स्थल में डाले गए शेष अपशिष्ट की मात्रा
	गह-प्रसंस्करण	प्रसंस्करण की गई कच्ची सामग्री
	सीमेंट संयंत्र को आपूर्तित दहनशील अपशिष्ट	
	ठोस अपशिष्ट आधारित विद्युत संयंत्रों को आपूर्तित दहनशील अपशिष्ट	
	अन्य	मात्रा
	ठोस अपशिष्ट निपटान सुविधाएं	
	स्थानीय निकाय के पास उपलब्ध सलबा स्थलों की संख्या	
	स्थानीय निकाय के पास उपलब्ध स्वास्थ्यकर भरण स्थलों की संख्या	

	अपशिष्ट के निपटान हेतु उपलब्ध ऐसे प्रत्येक स्थल का क्षेत्रफल	
	अपशिष्ट के निपटान के लिए वर्तमान में प्रयुक्त भूमि का क्षेत्रफल	
	शहर/नगर में मलवा स्थल/भरण सुविधा की दूरी	कि.मी.
	निकटतम बसावट से दूरी	कि.मी.
	जल निकाय से दूरी	कि.मी.
	राज्य/राष्ट्रीय राजमार्ग से दूरी	कि.मी.
	विमानपत्तन से दूरी	कि.मी.
	महत्वपूर्ण धार्मिक स्थलों या ऐतिहासिक स्मारक से दूरी	कि.मी.
	क्या यह बाढ़ संभावित क्षेत्र में पड़ता है	हां/नहीं
	क्या यह भूकंप संभावित क्षेत्र में पड़ता है	हां/नहीं
	प्रत्येक दिन भरण में डाले गए अपशिष्ट की मात्रा	टीपीडी
	क्या भरण स्थल को घेरा गया है	हां/नहीं
	क्या स्थल पर रोशनी की सुविधा उपलब्ध है	हां/नहीं
	क्या धर्मकांटा सुविधा उपलब्ध है	हां/नहीं
	भरण स्थल पर प्रयुक्त वाहन और उपकरण (स्पष्ट करें)	उपलब्ध बुलडोजर, कम्पैक्टर इत्यादि
	भरण स्थल पर नियोजित जनशक्ति	हां/नहीं (यदि हां तो विवरण संलग्न करें)
	क्या ढकने का काम दैनिक आधार पर किया जाता है	हां/नहीं
	यदि नहीं, तो भरण स्थल पर जमा अपशिष्ट को ढकने की बारंबारता	
	ढकने के लिए प्रयुक्त सामग्री	
	क्या ढकने की पर्याप्त सामग्री उपलब्ध है	हां/नहीं
	क्या गैस निकलने की व्यवस्था की गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
	निक्षालन संग्रहण का प्रावधान	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
9.	क्या शहर में ठोस अपशिष्ट प्रबंधन पद्धतियों में सुधार लाने के लिए कार्ययोजना बनाई गई है	हां/नहीं (यदि हां, तो तकनीकी डाटा शीट संलग्न करें)
10.	निम्न के लिए कौन से पृथक प्रावधान किए गए हैं : डेयरी से संबंधित कार्यकलाप : बूचड़खाने के अपशिष्ट : निर्माण एवं विध्वंस अपशिष्ट (निर्माण मलबा) :	प्रस्तावों, उठाए गए कदमों के संबंध में विवरण संलग्न करें हां/नहीं

		हां/नहीं हां/नहीं
11.	पञ्च संवृत्ति योजना का विवरण	योजना संलग्न करें
12.	कितनी मलिन बस्तियों का निर्धारण किया गया है और क्या इनमें ठोस अपशिष्ट प्रबंधन सुविधाएं उपलब्ध कराई गई हैं :	हां/नहीं (यदि हां, तो विवरण संलग्न करें)
13.	कृपया विवरण दें : गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए स्थानीय निकाय की स्वयं की जनशक्ति	
14.	कृपया विवरण दें : गली में झाड़ू लगाने, अपशिष्ट के द्वितीयक भंडारण, परिवहन, प्रसंस्करण और निपटान सहित संग्रहण के लिए ठेकेदार/रिवायतग्राही की नियोजित जनशक्ति	
15.	इन नियमों के प्रावधानों का अनुपालन करने में स्थानीय निकाय द्वारा महसूस की जा रही कठिनाइयों का संक्षेप में उल्लेख करें	
16.	ठोस अपशिष्ट से संबंधित समस्या से निपटने के लिए किसी अभिनव विचार का संक्षेप में उल्लेख करें जिसे अन्य स्थानीय निकायों द्वारा अपनाया जा सके	

मुख्य कार्यकारी अधिकारी/
नगरपालिका आयुक्त/कार्यकारी अधिकारी/
मुख्य अधिकारी के हस्ताक्षर

तारीख :

स्थान :

प्ररुप-V

[नियम 24(3) देखें]

राज्य प्रदूषण नियंत्रण बोर्ड या प्रदूषण नियंत्रण समितियों द्वारा केन्द्रीय प्रदूषण नियंत्रण बोर्ड को प्रस्तुत की जाने वाली वार्षिक रिपोर्ट का प्रपत्र

भाग क

सेवा में,

अध्यक्ष,
केन्द्रीय प्रदूषण नियंत्रण बोर्ड,
परिवेश भवन, पूर्वी अर्जुन नगर,
दिल्ली-110032

1.	राज्य/संघ राज्य क्षेत्र का नाम	:	
2.	राज्य प्रदूषण नियंत्रण बोर्ड का नाम और पता	:	
3.	इन नियमों के अंतर्गत राज्य/संघ राज्य क्षेत्र में ठोस अपशिष्टों के प्रबंधन के लिए उत्तरदायी स्थानीय निकायों की संख्या	:	
4.	प्राप्त हुए प्राधिकार आवेदनों की संख्या	:	
5.	ठोस अपशिष्ट प्रबंधन के संबंध में स्थानीय निकाय द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- I के रूप में संलग्न करें
6.	अपशिष्ट संग्रहण, पृथक्करण, परिवहन और निपटान के संबंध में स्थानीय निकायों द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- II के रूप में संलग्न करें
7.	अनुसूची II के कार्यान्वयन के संबंध में स्थानीय निकायों द्वारा की गई प्रगति के संबंध में सारांश विवरण	:	कृपया अनुबंध- III के रूप में संलग्न करें

तारीख :	अध्यक्ष या सदस्य सचिव
स्थान :	राज्य प्रदूषण नियंत्रण बोर्ड/
	प्रदूषण नियंत्रण समिति

भाग ख

नगर/शहर

नगरों/शहरों की कुल संख्या

शहरी स्थानीय निकायों की कुल संख्या

श्रेणी-I तथा श्रेणी-II नगरों/शहरों की संख्या

प्राधिकार की स्थिति (नाम/संख्या)

प्राप्त हुए आवेदनों की संख्या

प्रदान किए गए प्राधिकारों की संख्या

जांच के अधीन प्राधिकार

ठोस अपशिष्ट उत्पादन की स्थिति

राज्य में ठोस अपशिष्ट उत्पादन (टीपीडी)

संग्रहित

शोधित

खत्ते में डाले गए

ठोस अपशिष्ट नियम की अनुसूची I का अनुपालन (नगरों की संख्या/नाम/क्षमता)

शहरों/नगरों में अच्छी रीतियां

घर-घर से संग्रहण

पृथक्करण

भंडारण

आवृत्त परिवहन

ठोस अपशिष्ट का प्रसंस्करण (नगरों की संख्या/नाम/क्षमता)

ठोस अपशिष्ट प्रसंस्करण सुविधाओं की स्थापना :

क्रम सं.	कम्पोस्टिंग	वर्मी-कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

प्रचालनरत प्रसंस्करण सुविधा

क्रम सं.	कम्पोस्टिंग	वर्मी -कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

संस्थापनाधीन/योजनाकृत प्रसंस्करण सुविधा

क्रम सं.	कम्पोस्टिंग	वर्मी-कम्पोस्टिंग	बायो गैस	आरडीएफ/गुटिकाकरण

अपशिष्ट से ऊर्जा संयंत्र : (नगरों की संख्या/नाम/क्षमता)

क्रम सं.	संयंत्र का स्थान	प्रचालन की स्थिति	विद्युत उत्पादन (मेगा वाट)	अभ्युक्ति

ठोस अपशिष्ट का निपटान (नगरों की संख्या/नाम/क्षमता)

अभिनिर्धारित भरण स्थल

निर्मित भरण स्थल

निर्माणाधीन भरण स्थल

प्रचालनरत भरण स्थल

निष्शेषित भरण स्थल

आच्छादित भरण स्थल

ठोस अपशिष्ट मलबा स्थल (नगरों की संख्या/नाम/क्षमता)

विद्यमान मलबा स्थलों की कुल संख्या

पुनर्निर्मित/आच्छादित भरण स्थल

स्वास्थ्यकर भरण स्थल में परिवर्तित मलबा स्थल

अपशिष्ट प्रसंस्करण/भरण स्थलों पर निगरानी

क्रम सं.	सुविधाओं का नाम	परिवेशी वायु	भू जल	निक्षालन की गुणवत्ता	कंपोस्ट की गुणवत्ता	बीओसी
1.						
2.						
3.						

नगरपालिकाओं द्वारा तैयार की गई कार्य योजनाओं की स्थिति

नगरपालिकाओं की कुल संख्या:

प्रस्तुत की गई कार्य योजना की संख्या:

प्ररूप-VI

[नियम 25 देखें]

दुर्घटना का प्रतिवेदन

1.	दुर्घटना की तारीख और समय	:	
2.	दुर्घटना के लिए कारकों का अनुक्रम	:	
3.	दुर्घटना में शामिल अपशिष्ट	:	
4.	मानव स्वास्थ्य और पर्यावरण पर दुर्घटनाओं के प्रभावों का मूल्यांकन	:	
5.	किए गए आपातकालीन उपाय	:	
6.	दुर्घटनाओं के प्रभावों को कम करने के लिए उठाए गए कदम	:	
7.	ऐसी किसी दुर्घटना की पुनरावृत्ति को रोकने के लिए उठाए गए कदम	:	
तारीख		हस्ताक्षर	
स्थान		पदनाम	

[फा. सं.18-3/2004-एचएसएमडी]

विश्वनाथ सिन्हा, संयुक्त सचिव

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 8th April, 2016

S.O. 1357(E).—Whereas the draft of the Solid Waste Management Rules, 2015 were published under the notification of the Government of India in the Ministry of Environment, Forest and Climate Change number G.S.R. 451 (E), dated the 3rd June, 2015 in the Gazette of India, part II, Section3, sub- section (i) of the same date inviting objections or suggestions from the persons likely to be affected thereby, before the expiry of the period of sixty days from the publication of the said notification on the Solid Waste Management Rules, 2015 in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000;

And whereas, copies of the said Gazette were made available to the public on the 3rd June, 2015;

And whereas, the objections or comments received within the stipulated period were duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 3, 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) and in supersession of the Municipal Solid Waste (Management and Handling) Rules, 2000, except as respect things done or omitted to be done before such supersession, the Central Government hereby makes the following rules for management of Solid Waste, namely:-

1. **Short title and commencement.-**

(1) These rules may be called the Solid Waste Management Rules, 2016.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. **Application.-** These rules shall apply to every urban local body, outgrowths in urban agglomerations, census towns as declared by the Registrar General and Census Commissioner of India, notified areas, notified industrial townships, areas under the control of Indian Railways, airports, airbases, Ports and harbours, defence establishments, special economic zones, State and Central government organisations, places of pilgrims, religious and historical importance as may be notified by respective State government from time to time and to every domestic, institutional, commercial and any other non residential solid waste generator situated in the areas except industrial waste, hazardous waste, hazardous chemicals, bio medical wastes, e-waste, lead acid batteries and radio-active waste, that are covered under separate rules framed under the Environment (Protection) Act, 1986.

3. **Definitions** –(1) In these rules, unless the context otherwise requires,- (1) **"aerobic composting"** means a controlled process involving microbial decomposition of organic matter in the presence of oxygen;

2. **"anaerobic digestion"** means a controlled process involving microbial decomposition of organic matter in absence of oxygen;

3. **"authorisation"** means the permission given by the State Pollution Control Board or Pollution Control Committee, as the case may be, to the operator of a facility or urban local authority, or any other agency responsible for processing and disposal of solid waste;

4. **"biodegradable waste "** means any organic material that can be degraded by micro-organisms into simpler stable compounds;

5. **"bio-methanation"** means a process which entails enzymatic decomposition of the organic matter by microbial action to produce methane rich biogas;

6. **"brand owner"** means a person or company who sells any commodity under a registered brand label.

7. **"buffer zone"** means zone of no development to be maintained around solid waste processing and disposal facility, exceeding 5 TPD of installed capacity. This will be maintained within total land area allotted for the solid waste processing and disposal facility.

8. **"bulk waste generator"** means and includes buildings occupied by the Central government departments or undertakings, State government departments or undertakings, local bodies, public sector undertakings or private companies, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, commercial establishments, markets, places of worship, stadia and sports complexes having an average waste generation rate exceeding 100kg per day;

9. **"bye-laws"** means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these rules effectively in their jurisdiction.

10. **"census town"** means an urban area as defined by the Registrar General and Census Commissioner of India;

11. **"combustible waste"** means non-biodegradable, non-recyclable, non-reusable, non hazardous solid waste having minimum calorific value exceeding 1500 kcal/kg and excluding chlorinated materials like plastic, wood pulp, etc;

12. **"composting"** means a controlled process involving microbial decomposition of organic matter;

13. **"contractor"** means a person or firm that undertakes a contract to provide materials or labour to perform a service or do a job for service providing authority;

14. **"co-processing"** means use of non-biodegradable and non recyclable solid waste having calorific value exceeding 1500k/cal as raw material or as a source of energy or both to replace or supplement the natural mineral resources and fossil fuels in industrial processes;

15. **"decentralised processing"** means establishment of dispersed facilities for maximizing the processing of bio-degradable waste and recovery of recyclables closest to the source of generation so as to minimize transportation of waste for processing or disposal;

16. **"disposal"** means the final and safe disposal of post processed residual solid waste and inert street sweepings and silt from surface drains on land as specified in Schedule I to prevent contamination of ground water, surface water, ambient air and attraction of animals or birds;

17. **"domestic hazardous waste"** means discarded paint drums, pesticide cans, CFL bulbs, tube lights, expired medicines, broken mercury thermometers, used batteries, used needles and syringes and contaminated gauge, etc., generated at the household level;

18. **"door to door collection"** means collection of solid waste from the door step of households, shops, commercial establishments , offices , institutional or any other non residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society , multi storied building or apartments , large residential, commercial or institutional complex or premises;.

19. **"dry waste"** means waste other than bio-degradable waste and inert street sweepings and includes recyclable and non recyclable waste, combustible waste and sanitary napkin and diapers, etc;

20. **"dump sites"** means a land utilised by local body for disposal of solid waste without following the principles of sanitary land filling;

21. **"extended producer responsibility" (EPR)** means responsibility of any producer of packaging products such as plastic, tin, glass and corrugated boxes, etc., for environmentally sound management, till end-of-life of the packaging products;

22. **"facility"** means any establishment wherein the solid waste management processes namely segregation, recovery, storage, collection, recycling, processing, treatment or safe disposal are carried out;

23. **"fine"** means penalty imposed on waste generators or operators of waste processing and disposal facilities under the bye-laws for non-compliance of the directions contained in these rules and/or bye- laws

24. **"Form"** means a F8orm appended to these rules;

25. **"handling"** includes all activities relating to sorting, segregation, material recovery, collection, secondary storage, shredding, baling, crushing, loading, unloading, transportation, processing and disposal of solid wastes;

26. **"inerts"** means wastes which are not bio-degradable, recyclable or combustible street sweeping or dust and silt removed from the surface drains;

27. **"incineration"** means an engineered process involving burning or combustion of solid waste to thermally degrade waste materials at high temperatures;

28. **"informal waste collector"** includes individuals, associations or waste traders who are involved in sorting, sale and purchase of recyclable materials;

29. **"leachate"** means the liquid that seeps through solid waste or other medium and has extracts of dissolved or suspended material from it;

30. **" local body"** for the purpose of these rules means and includes the municipal corporation, nagar nigam, municipal council, nagarpalika, nagar Palikaparishad, municipal board, nagar panchayat and town panchayat, census towns, notified areas and notified industrial townships with whatever name they are called in different States and union territories in India;

31. **"materials recovery facility" (MRF)** means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity mentioned in rule 2for the purpose before the waste is delivered or taken up for its processing or disposal;

32. **"non-biodegradable waste"** means any waste that cannot be degraded by micro organisms into simpler stable compounds;

33. **"operator of a facility"** means a person or entity, who owns or operates a facility for handling solid waste which includes the local body and any other entity or agency appointed by the local body;

34. **primary collection"** means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and any other non-residential premises or from any collection points or any other location specified by the local body;

35. **"processing"** means any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products;

36. **"recycling"** means the process of transforming segregated non-biodegradable solid waste into new material or product or as raw material for producing new products which may or may not be similar to the original products;

37. **"redevelopment"** means rebuilding of old residential or commercial buildings at the same site, where the existing buildings and other infrastructures have become dilapidated;

38. **"refused derived fuel"**(RDF) means fuel derived from combustible waste fraction of solid waste like plastic, wood, pulp or organic waste, other than chlorinated materials, in the form of pellets or fluff produced by drying, shredding, dehydrating and compacting of solid waste ;

39. **"residual solid waste"** means and includes the waste and rejects from the solid waste processing facilities which are not suitable for recycling or further processing;

40. **"sanitary land filling "** means the final and safe disposal of residual solid waste and inert wastes on land in a facility designed with protective measures against pollution of ground water, surface water and fugitive air dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants slope instability and erosion;

41. **"sanitary waste"** means wastes comprising of used diapers, sanitary towels or napkins, tampons, condoms, incontinence sheets and any other similar waste;

42. **"Schedule"** means the Schedule appended to these rules;

43. **"secondary storage"** means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility;

44. **"segregation"** means sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and non recyclable inert waste, domestic hazardous wastes; and construction and demolition wastes;

45. **"service provider"** means an authority providing public utility services like water, sewerage, electricity, telephone, roads, drainage, etc;

46. **"solid waste"** means and includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste excluding industrial waste, bio-medical waste and e-waste, battery waste, radio-active waste generated in the area under the local authorities and other entities mentioned in rule 2;

47. **"sorting"** means separating various components and categories of recyclables such as paper, plastic, card-boards, metal, glass, etc., from mixed waste as may be appropriate to facilitate recycling;

48. **"stabilising"** means the biological decomposition of biodegradable wastes to a stable state where it generates no leachate or offensive odours and is fit for application to farm land ,soil erosion control and soil remediation;

49. **"street vendor"** means any person engaged in vending of articles, goods, wares, food items or merchandise of everyday use or offering services to the general public, in a street, lane, side walk, footpath, pavement, public park or any other public place or private area, from a temporary built up structure or by moving from place to place and includes hawker, peddler, squatter and all other synonymous terms which may be local or region specific; and the words "street vending" with their grammatical variations and cognate expressions, shall be construed accordingly;

50. **"tipping fee"** means a fee or support price determined by the local authorities or any state agency authorised by the State government to be paid to the concessionaire or operator of waste processing facility or for disposal of residual solid waste at the landfill;

51. **"transfer station"** means a facility created to receive solid waste from collection areas and transport in bulk in covered vehicles or containers to waste processing and, or, disposal facilities;

52. **"transportation"** means conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions;

53. **"treatment"** means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its volume and potential to cause harm;

54. **"user fee"** means a fee imposed by the local body and any entity mentioned in rule 2 on the waste generator to cover full or part cost of providing solid waste collection, transportation, processing and disposal services.

55. **"vermi composting"** means the process of conversion of bio-degradable waste into compost using earth worms;

56. **"waste generator"** means and includes every person or group of persons, every residential premises and non residential establishments including Indian Railways, defense establishments, which generate solid waste;

57. **"waste hierarchy"** means the priority order in which the solid waste is to should be managed by giving

emphasis to prevention, reduction, reuse, recycling, recovery and disposal, with prevention being the most preferred option and the disposal at the landfill being the least;

58. **"waste picker"** means a person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation the streets, bins, material recovery facilities, processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood.

(2) Words and expressions used herein but not defined, but defined in the Environment (Protection) Act, 1986, the Water (Prevention and Control of Pollution) Act, 1974, Water (Prevention and Control of Pollution) Cess Act, 1977 and the Air (prevention and Control of Pollution) Act, 1981 shall have the same meaning as assigned to them in the respective Acts.

4. **Duties of waste generators.**- (1) Every waste generator shall,-

(a) segregate and store the waste generated by them in three separate streams namely bio-degradable, non bio-degradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorised waste pickers or waste collectors as per the direction or notification by the local authorities from time to time;

(b) wrap securely the used sanitary waste like diapers, sanitary pads etc., in the pouches provided by the manufacturers or brand owners of these products or in a suitable wrapping material as instructed by the local authorities and shall place the same in the bin meant for dry waste or non- bio-degradable waste;

(c) store separately construction and demolition waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; and

(d) store horticulture waste and garden waste generated from his premises separately in his own premises and dispose of as per the directions of the local body from time to time.

(2) No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.

(3) All waste generators shall pay such user fee for solid waste management, as specified in the bye-laws of the local bodies.

(4) No person shall organise an event or gathering of more than one hundred persons at any unlicensed place without intimating the local body, at least three working days in advance and such person or the organiser of such event shall ensure segregation of waste at source and handing over of segregated waste to waste collector or agency as specified by the local body.

(5) Every street vendor shall keep suitable containers for storage of waste generated during the course of his activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits, etc., and shall deposit such waste at waste storage depot or container or vehicle as notified by the local body.

(6) All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(7) All gated communities and institutions with more than 5,000 sqm area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorizsd recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(8) All hotels and restaurants shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

5. **Duties of Ministry of Environment, Forest and Climate Change.**- (1) The Ministry of Environment, Forest and Climate Change shall be responsible for over all monitoring the implementation of these rules in the country. It shall constitute a Central Monitoring Committee under the Chairmanship of Secretary, Ministry of Environment, Forest and Climate Change comprising officer not below the rank of Joint Secretary or Advisor from the following namely,-

1) Ministry of Urban Development

2) Ministry of Rural Development

3) Ministry of Chemicals and Fertilizers

4) Ministry of Agriculture

5) Central Pollution Control Board

6) Three State Pollution Control Boards or Pollution Control Committees by rotation

7) Urban Development Departments of three State Governments by rotation

8) Rural Development Departments from two State Governments by rotation

9) Three Urban Local bodies by rotation

10) Two census towns by rotation

11) FICCI, CII

12) Two subject experts

2. This Central Monitoring Committee shall meet at least once in a year to monitor and review the implementation of these rules. The Ministry of Environment, Forest and Climate Change may co-opt other experts, if needed. The Committee shall be renewed every three years.

6. Duties of Ministry of Urban Development.- (1) The Ministry of Urban Development shall coordinate with State Governments and Union territory Administrations to,-

(a) take periodic review of the measures taken by the states and local bodies for improving solid waste management practices and execution of solid waste management projects funded by the Ministry and external agencies at least once in a year and give advice on taking corrective measures;

(b) formulate national policy and strategy on solid waste management including policy on waste to energy in consultation with stakeholders within six months from the date of notification of these rules;

(c) facilitate States and Union Territories in formulation of state policy and strategy on solid management based on national solid waste management policy and national urban sanitation policy;

(d) promote research and development in solid waste management sector and disseminate information to States and local bodies;

(e) undertake training and capacity building of local bodies and other stakeholders;and

(f) provide technical guidelines and project finance to states, Union territories and local bodies on solid waste management to facilitate meeting timelines and standards.

7. Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers.- (1) The Department of Fertilisers through appropriate mechanisms shall,-

(a) provide market development assistance on city compost; and

(b) ensure promotion of co-marketing of compost with chemical fertilisers in the ratio of 3 to 4 bags: 6 to 7 bags by the fertiliser companies to the extent compost is made available for marketing to the companies.

8. Duties of Ministry of Agriculture, Government of India.- The Ministry of Agriculture through appropriate mechanisms shall,-

(a) provide flexibility in Fertiliser Control Order for manufacturing and sale of compost;

(b) propagate utilisation of compost on farm land;

(c) set up laboratories to test quality of compost produced by local authorities or their authorised agencies; and

(d) issue suitable guidelines for maintaining the quality of compost and ratio of use of compost visa-a-vis chemical fertilizers while applying compost to farmland.

9. Duties of the Ministry of Power.-The Ministry of Power through appropriate mechanisms shall,-

(a) decide tariff or charges for the power generated from the waste to energy plants based on solid waste.

(b) compulsory purchase power generated from such waste to energy plants by distribution company.

10. Duties of Ministry of New and Renewable Energy Sources- The Ministry of New and Renewable Energy Sources through appropriate mechanisms shall,-

(a) facilitate infrastructure creation for waste to energy plants; and

(b) provide appropriate subsidy or incentives for such waste to energy plants.

11. Duties of the Secretary–in-charge, Urban Development in the States and Union territories.- (1) The Secretary, Urban Development Department in the State or Union territory through the Commissioner or Director of Municipal Administration or Director of local bodies shall,-

(a) prepare a state policy and solid waste management strategy for the state or the union territory in consultation with stakeholders including representative of waste pickers, self help group and similar groups working in the field of waste management consistent with these rules, national policy on solid waste management and national urban sanitation policy of the ministry of urban development, in a period not later than one year from the date of notification of these rules;

(b) while preparing State policy and strategy on solid waste management, lay emphasis on waste reduction, reuse, recycling, recovery and optimum utilisation of various components of solid waste to ensure minimisation of waste going to the landfill and minimise impact of solid waste on human health and environment;

(c) state policies and strategies should acknowledge the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste and provide broad guidelines regarding integration of waste picker or informal waste collectors in the waste management system.

(d) ensure implementation of provisions of these rules by all local authorities;

(e) direct the town planning department of the State to ensure that master plan of every city in the State or Union territory provisions for setting up of solid waste processing and disposal facilities except for the cities who are members of common waste processing facility or regional sanitary landfill for a group of cities; and

(f) ensure identification and allocation of suitable land to the local bodies within one year for setting up of processing and disposal facilities for solid wastes and incorporate them in the master plans (land use plan) of the State or as the case may be, cities through metropolitan and district planning committees or town and country planning department;

(h) direct the town planning department of the State and local bodies to ensure that a separate space for segregation, storage, decentralised processing of solid waste is demarcated in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling or having a plot area exceeding 5,000 square meters;

(i) direct the developers of Special Economic Zone, Industrial Estate, Industrial Park to earmark at least five percent of the total area of the plot or minimum five plots or sheds for recovery and recycling facility.

(j) facilitate establishment of common regional sanitary land fill for a group of cities and towns falling within a distance of 50 km (or more) from the regional facility on a cost sharing basis and ensure professional management of such sanitary landfills;

(k) arrange for capacity building of local bodies in managing solid waste, segregation and transportation or processing of such waste at source;

(l) notify buffer zone for the solid waste processing and disposal facilities of more than five tons per day in consultation with the State Pollution Control Board; and

(m) start a scheme on registration of waste pickers and waste dealers.

12. Duties of District Magistrate or District Collector or Deputy Commissioner:- The District Magistrate or District Collector or as the case may be , the Deputy Commissioner shall, -

(a) facilitate identification and allocation of suitable land as per clause (f) of rules 11 for setting up solid waste processing and disposal facilities to local authorities in his district in close coordination with the Secretary-in-charge of State Urban Development Department within one year from the date of notification of these rules;

(b) review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development.

13. Duties of the Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory.- (1) The Secretary–in-charge of Village Panchayats or Rural Development Department in the State and Union territory shall have the same duties as the Secretary–in-charge, Urban Development in the States and Union territories, for the areas which are covered under these rules and are under their jurisdictions.

14. Duties of Central Pollution Control Board.-The Central Pollution Control Board shall, -

(a) co-ordinate with the State Pollution Control Boards and the Pollution Control Committees for implementation of these rules and adherence to the prescribed standards by local authorities;

(b) formulate the standards for ground water, ambient air, noise pollution, leachate in respect of all solid waste processing and disposal facilities;

(c) review environmental standards and norms prescribed for solid waste processing facilities or treatment technologies and update them as and when required;

(d) review through State Pollution Control Boards or Pollution Control Committees, at least once in a year, the implementation of prescribed environmental standards for solid waste processing facilities or treatment technologies and compile the data monitored by them;

(e) review the proposals of State Pollution Control Boards or Pollution Control Committees on use of any new technologies for processing, recycling and treatment of solid waste and prescribe performance standards, emission norms for the same within 6 months;

(f) monitor through State Pollution Control Boards or Pollution Control Committees the implementation of these rules by local bodies;

(g) prepare an annual report on implementation of these rules on the basis of reports received from State Pollution Control Boards and Committees and submit to the Ministry of Environment, Forest and Climate Change and the report shall also be put in public domain;

(h) publish guidelines for maintaining buffer zone restricting any residential, commercial or any other construction activity from the outer boundary of the waste processing and disposal facilities for different sizes of facilities handling more than five tons per day of solid waste;

(i) publish guidelines, from time to time, on environmental aspects of processing and disposal of solid waste to enable local bodies to comply with the provisions of these rules; and

(j) provide guidance to States or Union territories on inter-state movement of waste.

15. Duties and responsibilities of local authorities and village Panchayats of census towns and urban agglomerations.- The local authorities and Panchayats shall,-

(a) prepare a solid waste management plan as per state policy and strategy on solid waste management within six months from the date of notification of state policy and strategy and submit a copy to respective departments of State Government or Union territory Administration or agency authorised by the State Government or Union territory Administration;

(b) arrange for door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non residential premises. From multi-storage buildings, large commercial complexes, malls, housing complexes, etc., this may be collected from the entry gate or any other designated location;

(c) establish a system to recognise organisations of waste pickers or informal waste collectors and promote and establish a system for integration of these authorised waste-pickers and waste collectors to facilitate their participation in solid waste management including door to door collection of waste;

(d) facilitate formation of Self Help Groups, provide identity cards and thereafter encourage integration in solid waste management including door to door collection of waste;

(e) frame bye-laws incorporating the provisions of these rules within one year from the date of notification of these rules and ensure timely implementation;

(f) prescribe from time to time user fee as deemed appropriate and collect the fee from the waste generators on its own or through authorised agency;

(g) direct waste generators not to litter i.e throw or dispose of any waste such as paper, water bottles, liquor bottles, soft drink cans, tetra packs, fruit peel, wrappers, etc., or burn or burry waste on streets, open public spaces, drains, waste bodies and to segregate the waste at source as prescribed under these rules and hand over the segregated waste to authorised the waste pickers or waste collectors authorised by the local body;

(h) setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be painted white and those for storage of other wastes shall be painted black;

(i) establish waste deposition centres for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal. Such facility shall be established in a city or town in a manner that one centre is set up for the area of twenty square kilometers or part thereof and notify the timings of receiving domestic hazardous waste at such centres;

(j) ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the State Pollution Control Board or the Pollution Control Committee;

(k) direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and handover to the waste collectors or agency authorised by local body;

(l) provide training on solid waste management to waste-pickers and waste collectors;

(m) collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or bio-methanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;

(n) collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation;

(o) set up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains in cases where direct collection of such waste into transport vehicles is not convenient. Waste so collected shall be collected and disposed of at regular intervals as decided by the local body;

(p) collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible;

(q) transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility. Preference shall be given for on site processing of such waste;

(r) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility;

(s) transport construction and demolition waste as per the provisions of the Construction and Demolition Waste management Rules, 2016;

(t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;

(u) phase out the use of chemical fertilizer in two years and use compost in all parks, gardens maintained by the local body and wherever possible in other places under its jurisdiction. Incentives may be provided to recycling initiatives by informal waste recycling sector.

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as–

a) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

b) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;

(w) undertake on their own or through any other agency construction, operation and maintenance of sanitary landfill and associated infrastructure as per Schedule I for disposal of residual wastes in a manner prescribed under these rules;

(x) make adequate provision of funds for capital investments as well as operation and maintenance of solid waste management services in the annual budget ensuring that funds for discretionary functions of the local body have been allocated only after meeting the requirement of necessary funds for solid waste management and other obligatory functions of the local body as per these rules;

(y) make an application in Form-I for grant of authorisation for setting up waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tones per day including sanitary landfills from the State Pollution Control Board or the Pollution Control Committee, as the case may be;

(z) submit application for renewal of authorisation at least sixty days before the expiry of the validity of authorisation;

(za) prepare and submit annual report in Form IV on or before the 30th April of the succeeding year to the Commissioner or Director, Municipal Administration or designated Officer;

(zb) the annual report shall then be sent to the Secretary -in-Charge of the State Urban Development Department or village panchayat or rural development department and to the respective State Pollution Control Board or Pollution Control Committee by the 31st May of every year;

(zc) educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility;

(zd) ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the workforce;

(ze) ensure that provisions for setting up of centers for collection, segregation and storage of segregated wastes, are incorporated in building plan while granting approval of building plan of a group housing society or market complex; and

(zf) frame bye-laws and prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the bye laws framed; and

(zg) create public awareness through information, education and communication campaign and educate the waste generators on the following; namely:-

(i) not to litter;

(ii) minimise generation of waste;

(iii) reuse the waste to the extent possible;

(iv) practice segregation of waste into bio-degradable, non-biodegradable (recyclable and combustible), sanitary waste and domestic hazardous wastes at source;

(v) practice home composting, vermi-composting, bio-gas generation or community level composting;

(vi) wrap securely used sanitary waste as and when generated in the pouches provided by the brand owners or a suitable wrapping as prescribed by the local body and place the same in the bin meant for non-biodegradable waste;

(vii) storage of segregated waste at source in different bins;

(viii) handover segregated waste to waste pickers, waste collectors, recyclers or waste collection agencies; and

(ix) pay monthly user fee or charges to waste collectors or local bodies or any other person authorised by the local body for sustainability of solid waste management.

(zh) stop land filling or dumping of mixed waste soon after the timeline as specified in rule 23 for setting up and operationalisation of sanitary landfill is over;

(zi) allow only the non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive inert waste and pre-processing rejects and residues from waste processing facilities to go to sanitary landfill and the sanitary landfill sites shall meet the specifications as given in Schedule-I, however, every effort shall be made to recycle or reuse the rejects to achieve the desired objective of zero waste going to landfill;

(zj) investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of bio-mining and bio-remediation and wheresoever feasible, take necessary actions to bio-mine or bio-remediate the sites;

(zk) in absence of the potential of bio-mining and bio-remediation of dumpsite, it shall be scientifically capped as per landfill capping norms to prevent further damage to the environment.

16. Duties of State Pollution Control Board or Pollution Control Committee.- (1) The State Pollution Control Board or Pollution Control Committee shall,-

(a) enforce these rules in their State through local bodies in their respective jurisdiction and review implementation of these rules at least twice a year in close coordination with concerned Directorate of Municipal Administration or Secretary-in-charge of State Urban Development Department;

(b) monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites;

(c) examine the proposal for authorisation and make such inquiries as deemed fit, after the receipt of the application for the same in Form I from the local body or any other agency authorised by the local body;

(d) while examining the proposal for authorisation, the requirement of consents under respective enactments and views of other agencies like the State Urban Development Department, the Town and Country Planning Department, District Planning Committee or Metropolitan Area Planning Committee, as may be applicable, Airport or Airbase Authority, the Ground Water Board, Railways, power distribution companies, highway department and other relevant agencies shall be taken into consideration and they shall be given four weeks time to give their views, if any;

(e) issue authorisation within a period of sixty days in Form II to the local body or an operator of a facility or any other agency authorised by local body stipulating compliance criteria and environmental standards as specified in Schedules I and II including other conditions, as may be necessary;

(f) synchronise the validity of said authorisation with the validity of the consents;

(g) suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated:

provided that no such authorization shall be suspended or cancelled without giving notice to the local body or operator, as the case may be; and

(h) on receipt of application for renewal, renew the authorisation for next five years, after examining every application on merit and subject to the condition that the operator of the facility has fulfilled all the provisions of the rules, standards or conditions specified in the authorisation, consents or environment clearance.

(2) The State Pollution Control Board or Pollution Control Committee shall, after giving reasonable opportunity of being heard to the applicant and for reasons thereof to be recorded in writing, refuse to grant or renew an authorisation.

(3) In case of new technologies, where no standards have been prescribed by the Central Pollution Control Board, State Pollution Control Board or Pollution Control Committee, as the case may be, shall approach Central Pollution Control Board for getting standards specified.

(4) The State Pollution Control Board or the Pollution Control Committee, as the case may be, shall monitor the compliance of the standards as prescribed or laid down and treatment technology as approved and the conditions stipulated in the authorisation and the standards specified in Schedules I and II under these rules as and when deemed appropriate but not less than once in a year.

(5) The State Pollution Control Board or the Pollution Control Committee may give directions to local bodies for safe handling and disposal of domestic hazardous waste deposited by the waste generators at hazardous waste deposition facilities.

(6) The State Pollution Control Board or the Pollution Control Committee shall regulate Inter-State movement of waste.

17. Duty of manufacturers or brand owners of disposable products and sanitary napkins and diapers.- (1) All manufacturers of disposable products such as tin, glass, plastics packaging, etc., or brand owners who introduce such products in the market shall provide necessary financial assistance to local authorities for establishment of waste management system.

(2) All such brand owners who sell or market their products in such packaging material which are non-biodegradable shall put in place a system to collect back the packaging waste generated due to their production.

(3) Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products.

(4) All such manufacturers, brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

18. Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste- All industrial units using fuel and located within one hundred km from a solid waste based refused derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refused derived fuel so produced.

19. Criteria for Duties regarding setting-up solid waste processing and treatment facility.- (1) The department in- charge of the allocation of land assignment shall be responsible for providing suitable land for setting up of the solid waste processing and treatment facilities and notify such sites by the State Government or Union territory Administration.

(2) The operator of the facility shall design and set up the facility as per the technical guidelines issued by the Central Pollution Control Board in this regard from time to time and the manual on solid waste management prepared by the Ministry of Urban Development.

(3) The operator of the facility shall obtain necessary approvals from the State Pollution Control Board or Pollution Control Committee.

(4) The State Pollution Control Board or Pollution Control Committee shall monitor the environment standards of the operation of the solid waste processing and treatment facilities.

(5) The operator of the facility shall be responsible for the safe and environmentally sound operations of the solid waste processing and or treatment facilities as per the guidelines issued by the Central Pollution Control Board from time to time and the Manual on Municipal Solid Waste Management published by the Ministry of Urban Development and updated from time to time.

(6) The operator of the solid waste processing and treatment facility shall submit annual report in Form III each year by 30th April to the State Pollution Control Board or Pollution Committee and concerned local body.

20. Criteria and actions to be taken for solid waste management in hilly areas.- In the hilly areas, the duties and responsibilities of the local authorities shall be the same as mentioned in rule 15 with additional clauses as under:

(a) Construction of landfill on the hill shall be avoided. A transfer station at a suitable enclosed location shall be setup to collect residual waste from the processing facility and inert waste. A suitable land shall be identified in the plain areas down the hill within 25 kilometers for setting up sanitary landfill. The residual waste from the transfer station shall be disposed of at this sanitary landfill.

(b) In case of non-availability of such land, efforts shall be made to set up regional sanitary landfill for the inert and residual waste.

(c) Local body shall frame Bye-laws and prohibit citizen from littering wastes on the streets and give strict direction to the tourists not to dispose any waste such as paper, water bottles, liquor bottles, soft drink canes, tetra packs, any other plastic or paper waste on the streets or down the hills and instead direct to deposit such waste in the litter bins that shall be placed by the local body at all tourist destinations.

(d) Local body shall arrange to convey the provisions of solid waste management under the bye-laws to all tourists visiting the hilly areas at the entry point in the town as well as through the hotels, guest houses or like where they stay and by putting suitable hoardings at tourist destinations.

(e) Local body may levy solid waste management charge from the tourist at the entry point to make the solid waste management services sustainable.

(f) The department in- charge of the allocation of land assignment shall identify and allot suitable space on the hills for setting up decentralised waste processing facilities. Local body shall set up such facilities. Step garden system may be adopted for optimum utilisation of hill space.

21. Criteria for waste to energy process.- (1) Non recyclable waste having calorific value of 1500 K/cal/kg or more shall not be disposed of on landfills and shall only be utilised for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.

(2) High calorific wastes shall be used for co-processing in cement or thermal power plants.

(3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tones per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorisation.

(4) The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

22. Time frame for implementation.- Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:

Sl. No.	Activity	Time limit from the date of notification of rules
(1)	(2)	(3)
1.	identification of suitable sites for setting up solid waste processing facilities	1 year

2.	identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more .	1 year
3.	procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities	2 years
4.	enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.,	2 years
5.	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years
6.	ensure separate storage, collection and transportation of construction and demolition wastes	2 years
7.	setting up solid waste processing facilities by all local bodies having 100000 or more population	2 years
8.	Setting up solid waste processing facilities by local bodies and census towns below 100000 population.	3 years
9	setting up common or stand alone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules	3 years
10.	setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules	3years
11.	bio-remediation or capping of old and abandoned dump sites	5years

23. **State Level Advisory Body.** – (1) Every Department in-charge of local bodies of the concerned State Government or Union territory administration shall constitute a State Level Advisory Body within six months from the date of notification of these rules comprising the following members, namely:-

Sl. No	Designation	Member
(1)	(2)	(3)
1.	Secretary, Department of Urban Development orLocal self government department of the State	Chairperson, ex-officio
2.	One representative of Panchayats or Rural development Department not below the rank of Joint Secretary to State Government	Member, ex-officio
3.	one representative of Revenue Department of State Government	Member,ex-officio
4.	One representative from Ministry of Environment, Forest and Climate Change Government of India	Member, ex-officio

5.	One representative from Ministry of Urban Development, Government of India	Member, ex-officio
6.	One representative from Ministry of Rural Development, Government of India	Member, ex-officio
7.	One representative from the Central Pollution Control Board	Member, ex-officio
8.	One representative from the State Pollution Control Board or Pollution Control Committee	Member, ex-officio
9.	One representative from Indian Institute of Technology or National Institute of Technology	Member,Ex-officio
10.	Chief town planner of the state	Member
11.	Three representatives from the local bodies by rotation	Member
12.	Two representatives from census towns or urban agglomerations by rotation.	Member
13.	One representative from reputed Non-Governmental Organisation or Civil Society working for the waste pickers or informal recycler or solid waste management	Member
14.	One representative from a body representing Industries at the State or Central level	Member
15.	one representative from waste recycling industry	member
16.	Two subject experts	Member
17.	Co-opt one representative each from agriculture department, and labour department of State Government.	Member

(2) The State Level Advisory Body shall meet at least one in every six months to review the matters related to implementation of these rules, state policy and strategy on solid waste management and give advice to state government for taking measures that are necessary for expeditious and appropriate implementation of these rules.

(3) The copies of the review report shall be forwarded to the State Pollution Control Board or Pollution Control Committee for necessary action.

24. Annual report.- (1) The operator of facility shall submit the annual report to the local body in Form-III on or before the 30th day of April every year.

(2) The local body shall submit its annual report in Form-IV to State P Control Board or P Committee and the Secretary-in-Charge of the Department of Urban Development of the concerned State or Union Territory in case of metropolitan city and to the Director of Municipal Administration or Commissioner of Municipal Administration or Officer in -Charge of Urban local bodies in the state in case of all other local bodies of state on or before the 30th day of June every year.

(3) Each State Pollution Control Board or Pollution Control Committee as the case may be, shall prepare and submit the consolidated annual report to the Central Pollution Control Board and Ministry of Urban Development on the implementation of these rules and action taken against non complying local body by the 31st day of July of each year in Form-V.

(4) The Central Pollution Control Board shall prepare a consolidated annual review report on the status of implementation of these rules by local bodies in the country and forward the same to the Ministry of Urban Development

and Ministry of Environment, Forest and Climate Change, along with its recommendations before the 31st day of August each year.

(5) The annual report shall be reviewed by the Ministry of Environment, Forest and Climate Change during the meeting of Central Monitoring Committee.

25. Accident reporting- In case of an accident at any solid waste processing or treatment or disposal facility or landfill site, the Officer- in- charge of the facility shall report to the local body in Form-VI and the local body shall review and issue instructions if any, to the in- charge of the facility.

SCHEDULE I

[see rule 15 (w),(zi), 16 (1) (b) (e), 16 (4)]

Specifications for Sanitary Landfills

(A) Criteria for site selection.-

(i) The department in the business allocation of land assignment shall provide suitable site for setting up of the solid waste processing and treatment facilities and notify such sites.

(ii) The sanitary landfill site shall be planned, designed and developed with proper documentation of construction plan as well as a closure planin a phased manner. In case a new landfill facility is being established adjoining an existing landfill site, the closure plan of existing landfill should form a part of the proposal of such new landfill.

(iii) The landfill sites shall be selected to make use of nearby wastes processing facilities. Otherwise, wastes processing facility shall be planned as an integral part of the landfill site.

(iv) Landfill sites shall be set up as per the guidelines of the Ministry of Urban Development, Government of India and Central Pollution Control Board.

(v) The existing landfill sites which are in use for more than five years shall be improved in accordance with the specifications given in this Schedule.

(vi) The landfill site shall be large enough to last for at least 20-25 years and shall develop 'landfill cells' in a phased manner to avoid water logging and misuse.

(vii) The landfill site shall be 100 meter away from river, 200 meter from a pond, 200 meter from Highways, Habitations, Public Parks and water supply wells and 20 km away from Airports or Airbase. However in a special case, landfill site may be set up within a distance of 10 and 20 km away from the Airport/Airbase after obtaining no objection certificate from the civil aviation authority/ Air force as the case may be. The Landfill site shall not be permitted within the flood plains as recorded for the last 100 years, zone of coastal regulation, wetland, Critical habitat areas, sensitive eco-fragile areas..

(viii) The sites for landfill and processing and disposal of solid waste shall be incorporated in the Town Planning Department's land-use plans.

(ix) A buffer zone of no development shall be maintained around solid waste processing and disposal facility, exceeding five Tonnes per day of installed capacity. This will be maintained within the total area of the solid waste processing and disposal facility. The buffer zone shall be prescribed on case to case basis by the local body in consultation with concerned State Pollution Control Board.

(x) The biomedical waste shall be disposed of in accordance with the Bio-medical Waste Management Rules, 2016, as amended from time to time . The hazardous waste shall be managed in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended from time to time. The E-waste shall be managed in accordance with the e-Waste (Management) Rules, 2016 as amended from time to time.

(xi) Temporary storage facility for solid waste shall be established in each landfill site to accommodate the waste in case of non- operation of waste processing and during emergency or natural calamities.

(B) Criteria for development of facilities at the sanitary landfills.-

(i) Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles, to prevent entry of unauthorised persons and stray animals.

(ii) The approach and / internal roads shall be concreted or paved so as to avoid generation of dust particles due to vehicular movement and shall be so designed to ensure free movement of vehicles and other machinery.

(iii) The landfill site shall have waste inspection facility to monitor waste brought in for landfilling h, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipment. The operator of the facility shall maintain record of waste received, processed and disposed.

(iv) Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipment and other facilities as may be required shall be provided.

(v) Utilities such as drinking water and sanitary facilities (preferably washing/bathing facilities for workers) and lighting arrangements for easy landfill operations during night hours shall be provided.

(vi) Safety provisions including health inspections of workers at landfill sites shall be carried out made.

(vii) Provisions for parking, cleaning, washing of transport vehicles carrying solid waste shall be provided. The wastewater so generated shall be treated to meet the prescribed standards.

(C) Criteria for specifications for land filling operations and closure on completion of land filling.-

(i) Waste for land filling shall be compacted in thin layers using heavy compactors to achieve high density of the waste. In high rainfall areas where heavy compactors cannot be used, alternative measures shall be adopted.

(ii) Till the time waste processing facilities for composting or recycling or energy recovery are set up, the waste shall be sent to the sanitary landfill. The landfill cell shall be covered at the end of each working day with minimum 10 cm of soil, inert debris or construction material..

(iii) Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage shall be constructed to divert run-off away from the active cell of the landfill.

(iv) After completion of landfill, a final cover shall be designed to minimise infiltration and erosion. The final cover shall meet the following specifications, namely :–

a) The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than 1×10^{-7} cm/sec.

b) On top of the barrier soil layer, there shall be a drainage layer of 15 cm.

c) On top of the drainage layer, there shall be a vegetative layer of 45 cm to support natural plant growth and to minimise erosion.

(D) Criteria for pollution prevention.-In order to prevent pollution from landfill operations, the following provisions shall be made, namely:-

(i) The storm water drain shall be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimise leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.

(ii) Non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) shall have liner of composite barrier of 1.5 mm thick high density polyethylene (HDPE) geo-membrane or geo-synthetic liners, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10-7 cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer provided at the bottom of landfills.

(iii) Provisions for management of leachates including its collection and treatment shall be made. The treated leachate shall be recycled or utilized as permitted, otherwise shall be released into the sewerage line, after meeting the standards specified in Schedule- II.. In no case, leachate shall be released into open environment.

(iv) Arrangement shall be made to prevent leachate runoff from landfill area entering any drain, stream, river, lake or pond. In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concern authority.

(E) Criteria for water quality monitoring.-

(i) Before establishing any landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 meter of the periphery of landfill site shall be periodically monitored covering different seasons in a year that is, summer, monsoon and post-monsoon period to ensure that the ground water is not contaminated.

(ii) Usage of groundwater in and around landfill sites for any purpose (including drinking and irrigation) shall be considered only after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose, namely :-

S. No.	Parameters	IS 10500:2012, Edition 2.2(2003-09) Desirable limit (mg/l except for pH)
(1)	(2)	(3)
	Arsenic	0.01
	Cadmium	0.01
	Chromium(as Cr^{6+})	0.05
	Copper	0.05
	Cyanide	0.05
	Lead	0.05
	Mercury	0.001
	Nickel	-
	Nitrate as NO_3	45.0
	pH	6.5-8.5
	Iron	0.3
	Total hardness (as $CaCO_3$)	300.0
	Chlorides	250
	Dissolved solids	500
	Phenolic compounds (as C_6H_5OH)	0.001
	Zinc	5.0
	Sulphate (as SO_4)	200

(F) Criteria for ambient air quality monitoring.-

(i) Landfill gas control system including gas collection system shall be installed at landfill site to minimize odour, prevent off-site migration of gases, to protect vegetation planted on the rehabilitated landfill surface. For enhancing landfill gas recovery, use of geomembranes in cover systems along with gas collection wells should be considered.

(ii) The concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL).

(iii) The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to escape directly to the atmosphere or for illegal tapping. Passive venting shall be allowed in case if its utilisation or flaring is not possible.

(iv) Ambient air quality at the landfill site and at the vicinity shall be regularly monitored. Ambient air quality shall

meet the standards prescribed by the Central Pollution Control Board for Industrial area.

G. Criteria for plantation at landfill Site.- A vegetative cover shall be provided over the completed site in accordance with the following specifications, namely:-

(a) Locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be planted;

(b) The selection of plants should be of such variety that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilized;

(c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;

(d) Plantation to be made in sufficient density to minimise soil erosion.

(e) Green belts shall be developed all around the boundary of the landfill in consultation with State Pollution Control Boards or Pollution Control Committees .

H. Criteria for post-care of landfill site.- (1) The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely :-

(a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(b) Monitoring leachate collection system in accordance with the requirement;

(c) Monitoring of ground water in and around landfill;

(d) Maintaining and operating the landfill gas collection system to meet the standards.

(2) Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous emission and leachate quality analysis complies with the specified standards and the soil stability is ensured.

I. Criteria for special provisions for hilly areas.-Cities and towns located on hills shall have location-specific methods evolved for final disposal of solid waste by the local body with the approval of the concerned State Pollution Control Board or the Pollution Control Committee. The local body shall set up processing facilities for utilisation of biodegradable organic waste. The non-biodegradable recyclable materials shall be stored and sent for recycling periodically. The inert and non-biodegradable waste shall be used for building roads or filling-up of appropriate areas on hills. In case of constraints in finding adequate land in hilly areas, waste not suitable for road-laying or filling up shall be disposed of in regional landfills in plain areas.

J. Closure and Rehabilitation of Old Dumps- Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(ii) Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii) Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

SCHEDULE II

[see rule 16 (1), (b), (e), 16 (4)]

Standards of processing and treatment of solid waste

A. Standards for composting.- The waste processing facilities shall include composting as one of the technologies for processing of bio degradable waste. In order to prevent pollution from compost plant, the following shall be complied with namely :-

(a) The incoming organic waste at site shall be stored properly prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

(b) Necessary precaution shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;

(c) In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of waste to the temporary processing site or temporary landfill sites which will be again reprocessed when plant is in order;

(d) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclable high calorific fractions to be segregated and sent to waste to energy or for RDF production, co-processing in cement plants or to thermal power plants. Only rejects from all processes shall be sent for sanitary landfill site(s).

(e) The windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay of 50 cm thick having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

(f) Ambient air quality monitoring shall be regularly carried out. Odournuisance at down-wind direction on the boundary of processing plant shall also be checked regularly.

(g) Leachate shall be re-circulated in compost plant for moisture maintenance.

(h) The end product compost shall meet the standards prescribed under Fertilizer Control Order notified from time to time.

(i) In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	Organic Compost (FCO 2009)	Phosphate Rich Organic Manure (FCO 2013)
(1)	(2)	(3)
Arsenic (mg/Kg)	10.00	10.00
Cadmium (mg/Kg)	5.00	5.00
Chromium (mg/Kg)	50.00	50.00
Copper (mg/Kg)	300.00	300.00
Lead (mg/Kg)	100.00	100.00
Mercury (mg/Kg)	0.15	0.15
Nickel (mg/Kg)	50.00	50.00
Zinc (mg/Kg)	1000.00	1000.00
C/N ratio	<20	Less than 20:1
pH	6.5-7.5	(1:5 solution) maximum 6.7
Moisture, percent by weight, maximum	15.0-25.0	25.0
Bulk density (g/cm^3)	<1.0	Less than 1.6
Total Organic Carbon, per cent by weight, minimum	12.0	7.9

Total Nitrogen (as N), per cent by weight, minimum	0.8	0.4
Total Phosphate (as P_2O_5) percent by weight, minimum	0.4	10.4
Total Potassium (as K_2O), percent by weight, minimum	0.4	-
Colour	Dark brown to black	-
Odour	Absence of foul Odor	-
Particle size	Minimum 90% material should pass through 4.0 mm IS sieve	Minimum 90% material should pass through 4.0 mm IS sieve
Conductivity (as dsm-1), not more than	4.0	8.2

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

B. **Standards for treated leachates.**-The disposal of treated leachates shall meet the following standards, namely:-

S. No	Parameter	Standards (Mode of Disposal)		
		Inland surface water	Public sewers	Land disposal
(1)	(2)	(3)	(4)	(5)
1.	Suspended solids, mg/l, max	100	600	200
2.	Dissolved solids (inorganic) mg/l, max.	2100	2100	2100
3	pH value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50	50	-
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100	-	-
6	Biochemical oxygen demand (3 days at 27° C) max.(mg/l)	30	350	100
7	Chemical oxygen demand, mg/l, max.	250	-	-
8	Arsenic (as As), mg/l, max	0.2	0.2	0.2
9	Mercury (as Hg), mg/l, max	0.01	0.01	-
10	Lead (as Pb), mg/l, max	0.1	1.0	-
11	Cadmium (as Cd), mg/l, max	2.0	1.0	-

12	Total Chromium (as Cr), mg/l, max.	2.0	2.0	–
13	Copper (as Cu), mg/l, max.	3.0	3.0	–
14	Zinc (as Zn), mg/l, max.	5.0	15	–
15	Nickel (as Ni), mg/l, max	3.0	3.0	–
16	Cyanide (as CN), mg/l, max.	0.2	2.0	0.2
17	Chloride (as Cl), mg/l, max.	1000	1000	600
18	Fluoride (as F), mg/l, max	2.0	1.5	–
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0	5.0	–

Note : While discharging treated leachates into inland surface waters, quantity of leachates being discharged and the quantity of dilution water available in the receiving water body shall be given due consideration.

C. **Standards for incineration:** The Emission from incinerators /thermal technologies in Solid Waste treatment/disposal facility shall meet the following standards, namely:-

Parameter	Emission standard	
(1)	(2)	(3)
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value
NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value
Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V + their compounds	0.5 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Note.- All values corrected to 11% oxygen on a dry basis.		

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits,.

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(c) Incineration of chlorinated plastics shall be phased out within two years.

(d) if the concentation of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal feaility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO2 concentration in tail gas shall not be more than 7%.

(g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 950^{0}C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time

FORM – I

[see rule 15 (y) 16 (1) (c), 21(3)]

Application for obtaining authorisation under solid waste management rules

for processing/recycling/treatment and disposal of solid waste

To,

The Member Secretary,

State Pollution Control Board or Pollution Control Committee,

of.....

Sir,

I/We hereby apply for authorisation under the Solid Waste Management Rules, 2016 for processing, recycling, treatment and disposal of solid waste.

1.	Name of the local body/agency appointed by them/ operator of facility	
2.	Correspondence address Telephone No. Fax No. e-mail:	

3.	Nodal Officer & designation(Officer authorised by the local body or agency responsible for operation of processing/ treatment or disposal facility)	
4.	Authorisation required for setting up and operation of the facility (Please tick mark)	waste processing recycling treatment disposal at landfill
5.	Attach copies of the Documents Site clearance (local body) Proof of Environmental Clearance Consent for establishment Agreement between municipal authority and operating agency Investment on the project and expected return	
6.	**Processing/recycling/treatment of solid waste** (i) Total Quantity of waste to be processed per day Quantity of waste to be recycled Quantity of waste to be treated Quantity of waste to be disposed into landfill (ii)Utilisation programme for waste processed (Product utilisation) (iii)Methodology for disposal (attach details) Quantity of leachate Treatment technology for leachate (iv)Measures to be taken for prevention and control of environmental pollution (v)Measures to be taken for safety of workers working in the plant (vi)Details on solid waste processing/recycling/ treatment/disposal facility (to be attached)	
7.	**Disposal of solid waste** Number of sites identified Quantity of waste to be disposed per day Details of methodology or criteria followed for site selection (attach) Details of existing site under operation Methodology and operational details of landfilling Measures taken to check environmental pollution	
8	Any other information.	

Date: Signature:

Place: Designation

341

Form- II

[see rule 16 (1) (e)]

Format for issue of authorisation

File No.:_____

Dated:_____

Authorisation No_____

To

Ref: Your application number _____dt. _____

The _____State Pollution Control Board/Pollution Control Committee after examining the proposal hereby authorises_____ having administrative office at _____to set up and operate waste processing/recycling/ treatment/disposal facility at_____

The authorisation is hereby granted to operate the facility for processing, recycling, treatment and disposal of solid waste.

The authorisation is subject to the terms and conditions stated below and such conditions as may be otherwise specified in these rules and the standards laid down in Schedules I and II under these rules.

The _____State Pollution Control Board/Pollution Control Committees of the UT may, at any time, revoke any of the conditions applicable under the authorisation and shall communicate the same in writing.

Any violation of the provision of the Solid Waste Management Rules, 2016will attract the penal provision of the Environment (Protection) Act, 1986 (29 of 1986).

(Member Secretary)

State Pollution Control Board/Pollution Control Committee of the UT

(Signature and designation)

Date:

Place:

Form – III

[see rule 19 (6), 24 (1)]

Format of annual report to be submitted by the operator of facility to the local body

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of the local body Telephone No. Fax No. E-mail:	
5	Name and address of operator of the facility	
6	Name of officer in-charge of the facility Phone No: Fax No: E-mail:	

7	Number of households in the city/town , Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
8	Quantity of Solid waste	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd
	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at landfill	/tpd
9	Status of Solid Waste Management (SWM) service	
	Segregation and storage of waste at source Whether solid waste is stored at source in domestic/commercial/ institutional bins If yes, Percentage of households practice storage of waste at source in domestic bins Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins Percentage of households dispose of throw solid waste on the streets Percentage of non-residential premises dispose of throw solid waste on the streets Whether solid waste is stored at source in a segregated form If yes, Percentage of premises segregating the waste at source	 Yes/No % % % % Yes/No %
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	

	Percentage of residential and non-residential premises covered in door to door collection through :					
	Motorized vehicle	%				
	Containerized tricycle/handcart	%				
	Other device	%				
	If not, method of primary collection adopted					
	Sweeping of streets					
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km				
	Frequency of street sweepings and percentage of population covered	frequency	Daily	Alternate days	Twice a week	Occasionally
		% of population covered				
	Tools used					
	Manual sweeping	%				
	Mechanical sweeping	%				
	Whether long handle broom used by sanitation workers	Yes/No				
	Whether each sanitation worker is given handcart/tricycle for collection of waste	Yes/No				
	Whether handcart / tricycle is containerized	Yes/No				
	Whether the collection tool synchronizes with collection/ waste storage containers utilized	Yes/No				
	Secondary Waste Storage facilities					
	No. and type of waste storage depots in the city/town	No.	Capacity in m^3			
	Open waste storage sites					
	Masonry bins					
	Cement concrete cylinder bins					
	Dhalao/covered rooms/space					
	Covered metal/plastic containers					
	Upto 1.1 m^3 bins					
	2 to 5 m^3 bins					
	Above 5m^3 containers					
	Bin-less city					
	Bin/ population ratio					

	Ward wise details of waste storage depots (attach) : Ward No: Area: Population: No. of bins placed Total volume of bins placed		
	Total storage capacity of waste storage facilities in cubic meters		
	Total waste actually stored at the waste storage depots daily		
	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage	(%) of Manual Lifting of SOLID WASTE	%
		(%) of Mechanical lifting	%
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	

	Waste Transportation per day Type and Number of vehicles used (pl tick or add)	No. Trips made waste transported
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader	
	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used	
	Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily	/tpd
	Land(s) available with the local body for waste processing (in Hectares)	
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction	
	Distance of processing facilities from city/town boundary	
	Details of technologies adopted	

	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Qty. of residual waste landfilled
	vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incineration, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms

	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site	Yes / No
	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No, (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No, (if yes, attach technical data sheet)
10	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
11	What separate provisions are made for : Dairy related activities : Slaughter houses waste : C&D waste (construction debris) :	Attach details on Proposals, Steps taken, Yes/No Yes/No Yes/No
12	Details of Post Closure Plan	Attach Plan
13	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
14	Give details of manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	

15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	
16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies.	

Signature of Operator

Dated :

Place:

Form – IV

[see rules 15(zn), 24(2)]

Format for annual report on solid waste management to be submitted by the local body

CALENDAR YEAR:	DATE OF SUBMISSION OF REPORT:

1	Name of the City/Town and State	
2	Population	
3	Area in sq. kilometers	
4	Name & Address of local body Telephone No. Fax No. E-mail:	
5	Name of officer in-charge dealing with solid waste management (SOLID WASTEM)Phone No: Fax No: E-mail:	
6	Number of households in the city/town Number of non-residential premises in the city Number of election/ administrative wards in the city/town	
7	Quantity of Solid waste (solid waste)	
	Estimated Quantity of solid waste generated in the local body area per day in metric tones	/tpd
	Quantity of solid waste collected per day	/tpd

	Per capita waste collected per day	/gm/day
	Quantity of solid waste processed	/tpd
	Quantity of solid waste disposed at dumpsite/ landfill	/tpd
8	Status of Solid Waste Management service	
	Segregation and storage of waste at source	
	Whether SOLID WASTE is stored at source in domestic/commercial/ institutional bins, If yes,	Yes/No
	Percentage of households practice storage of waste at source in domestic bins	%
	Percentage of non-residential premises practice storage of waste at source in commercial /institutional bins	%
	Percentage of households dispose or throw solid waste on the streets	%
	Percentage of non-residential premises dispose of throw solid waste on the streets	%
	Whether solid waste is stored at source in a segregated form, If yes,	Yes/No
	Percentage of premises segregating the waste at source	%
	Door to Door Collection of solid waste	
	Whether door to door collection (D2D) of solid waste is being done in the city/town	Yes/No
	if yes	
	Number of wards covered in D2D collection of waste	
	No. of households covered	
	No. of non-residential premises including commercial establishments ,hotels, restaurants educational institutions/ offices etc covered	
	Percentage of residential and non-residential premises covered in door to door collection through :	
	Motorized vehicle	%
	Containerized tricycle/handcart	%
	Other device	%
	If not, method of primary collection adopted	
	Sweeping of streets	
	Length of roads, streets, lanes, bye-lanes in the city that need to be cleaned	km

	Frequency of street sweepings and percentage of population covered	frequency	Daily	Alternate days	Twice a week	Occasionally
		% of population covered				
	Tools used					
	Manual sweeping	%				
	Mechanical sweeping	%				
	Whether long handle broom used by sanitation workers	Yes/No				
	Whether each sanitation worker is given handcart/tricycle for collection of waste	Yes/No				
	Whether handcart / tricycle is containerized	Yes/No				
	Whether the collection tool synchronizes with collection/ waste storage containers utilized	Yes/No				
	Secondary Waste Storage facilities					
	No. and type of waste storage depots in the city/town	No. Capacity in m^3				
	Open waste storage sites					
	Masonry bins					
	Cement concrete cylinder bins					
	Dhalao/covered rooms/space					
	Covered metal/plastic containers					
	Upto 1.1 m3 bins					
	2 to 5 m3 bins					
	Above 5m3 containers					
	Bin-less city					
	Bin/ population ratio					
	Ward wise details of waste storage depots (attach) :					
	Ward No:					
	Area:					
	Population:					
	No. of bins placed					
	Total volume of bins placed					
	Total storage capacity of waste storage facilities in cubic meters					
	Total waste actually stored at the waste storage depots daily					

	Give frequency of collection of waste from the depots Number of bins cleared	Frequency	No. of bins
		Daily	
		Alternate day	
		Twice a week	
		Once a week	
		Occasionally	
	Whether storage depots have facility for storage of segregated waste in green, blue and black bins	Yes/ No (if yes, add details) No. of green bins: No. of blue bins: No. of black bins:	
	Whether lifting of solid waste from storage depots is manual or mechanical. Give percentage (%) of Manual Lifting of solid waste (%) of Mechanical lifting	% %	
	If mechanical – specify the method used	front-end loaders/ Top loaders	
	Whether solid waste is lifted from door to door and transported to treatment plant directly in a segregated form	Yes/ No (if yes, specify)	
	Waste transportation per day Type and Number of vehicles used	No. Trips made waste transported	
	Animal cart Tractors Non tipping Truck Tipping Truck Dumper Placers Refuse collectors Compactors Others JCB/loader		

	Frequency of transportation of waste	Frequency (%) of waste transported Daily Alternate day Twice a week Once a week Occasionally
	Quantity of waste transported each day	/tpd
	Percentage of total waste transported daily	%
	Waste Treatment Technologies used	
	Whether solid waste is processed	Yes/No
	If yes, Quantity of waste processed daily	/tpd
	Whether treatment is done by local body or through an agency	
	Land(s) available with the local body for waste processing (in Hectares)	
	Land currently utilized for waste processing	
	Solid waste processing facilities in operation	
	Solid waste processing facilities under construction	
	Distance of processing facilities from city/town boundary	
	Details of technologies adopted	
	Composting ,	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Vermi composting	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Bio-methanation	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled

	Refuse Derived Fuel	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Waste to Energy technology such as incinernation, gasification, pyrolysis or any other technology (give detail)	Qty. raw material processed Qty. final product produced Qty. sold Quantity of residual waste landfilled
	Co-processing	Qty. raw material processed
	Combustible waste supplied to cement plant	
	Combustible waste supplied to solid waste based power plants	
	Others	Qty.
	Solid waste disposal facilities	
	No. of dumpsites sites available with the local body	
	No. of sanitary landfill sites available with the local body	
	Area of each such sites available for waste disposal	
	Area of land currently used for waste disposal	
	Distance of dumpsite/landfill facility from city/town	kms
	Distance from the nearest habitation	kms
	Distance from water body	kms
	Distance from state/national highway	kms
	Distance from Airport	kms
	Distance from important religious places or historical monument	kms
	Whether it falls in flood prone area	Yes/No
	Whether it falls in earthquake fault line area	Yes/No
	Quantity of waste landfilled each day	tpd
	Whether landfill site is fenced	Yes / No
	Whether Lighting facility is available on site	Yes / No

	Whether Weigh bridge facility available	Yes / No
	Vehicles and equipments used at landfill (specify)	Bulldozer, Compacters etc. available
	Manpower deployed at landfill site	Yes/No (if yes, attach details)
	Whether covering is done on daily basis	Yes/No
	If not, Frequency of covering the waste deposited at the landfill	
	Cover material used	
	Whether adequate covering material is available	Yes/No
	Provisions for gas venting provided	Yes/No (if yes, attach technical data sheet)
	Provision for leachate collection	Yes/No (if yes, attach technical data sheet)
9	Whether an Action Plan has been prepared for improving solid waste management practices in the city	Yes/No (if Yes attach Action Plan details)
10	What separate provisions are made for : Dairy related activities : Slaughter houses waste ; C&D waste (construction debris) :	Attach details on Proposals,Steps taken, Yes/No Yes/No Yes/No
11	Details of Post Closure Plan	Attach Plan
12	How many slums are identified and whether these are provided with Solid Waste Management facilities :	Yes/ No (if Yes, attach details)
13	Give details of: Local body's own manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
14	Give details of: Contractor/ concessionaire's manpower deployed for collection including street sweeping, secondary storage, transportation, processing and disposal of waste	
15	Mention briefly, the difficulties being experienced by the local body in complying with provisions of these rules	

16	Mention briefly, if any innovative idea is implemented to tackle a problem related to solid waste, which could be replicated by other local bodies	

Signature of CEO/Municipal Commissioner/
Executive Officer/Chief Officer

Date:

Place:

Form – V

[see rule 24(3)]

Format of annual report to be submitted by the state pollution control board or pollution control committee committees to the central pollution control board

PART A

To,

The Chairman
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
DELHI- 110 0032

1.	Name of the State/Union territory	:	
2.	Name & address of the State Pollution Control	:	
3.	Number of local bodies responsible for management of solid waste in the State/Union territory under these rules	:	
4.	No. of authorisation application Received	:	
5.	A Summary Statement on progress made by local body in respect of solid waste management	:	Please attach as Annexture-I
6.	A Summary Statement on progress made by local bodies in respect of waste collection, segregation, transportation and disposal	:	Please attach as Annexture-II
7.	A summary statement on progress made by local bodies in respect of implementation of Schedule II	:	Please attach as Annexture-III

Date: ..... Place:	Chairman or the Member Secretary State Pollution Control Board/ Pollution Control Committee

PART B

Towns/cities

Total number of towns/cities

Total number of ULBs

Number of class I & class II cities/towns

Authorisation status (names/number)

Number of applications received

Number of authorisations granted

Authorisations under scrutiny

SOLID WASTE Generation status

Solid waste generation in the state (TPD)

collected

treated

landfilled

Compliance to Schedule I of SW Rules (Number/names of towns/capacity)

Good practices in cities/towns

House-to-house collection

Segregation

Storage

Covered transportation

Processing of SW (Number/names of towns/capacity)

Solid Waste processing facilities setup:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility operational:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletization

Processing facility under installation/planned:

Sl. No.	Composting	Vermi-composting	Biogas	RDF/Pelletisation

Waste-to-Energy Plants: (Number/names of towns/capacity)

Sl. No.	Plant Location	Status of operation	Power generation (MW)	Remarks

Disposal of solid waste (number/names of towns/capacity):

Landfill sites identified

Landfill constructed

Landfill under construction

Landfill in operation

Landfill exhausted

Landfilled capped

Solid Waste Dumpsites (number/names of towns/capacity):

Total number of existing dumpsites

Dumpsites reclaimed/capped

Dumpsites converted to sanitary landfill

Monitoring at Waste processing/Landfills sites

Sl. No.	Name of facilities	Ambient air	Groundwater	Leachate quality	Compost quality	VOCs
1.						
2.						
3.						

Status of Action Plan prepared by Municipalities

Total number of municipalities:

Number of Action Plan submitted:

Form – VI

[see rule 25]

Accident Reporting

1.	Date and time of accident	:	
2.	Sequence of events leading to accident	:	
3.	The waste involved in accident	:	

4.	Assessment of the effects of the accidents on human health and the environment	:	
5.	Emergency measures taken	:	
6.	Steps taken to alleviate the effects of accidents	:	
7.	Steps taken to prevent the recurrence of such an accident	:	
Date:		Signature:.....	
Place:		Designation:	

[F. No. 18-3/2004-HSMD]

BISHWANATH SINHA, Jt. Secy.

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Annexure- IB

Provisions of Solid Waste Management Rules (SWM), 2016 related to waste to energy

Under SWM Rules, 2016 various provisions have been stipulated regarding responsibilities of local authorities for creation of solid waste processing facilities, State Pollution Control Board for regular monitoring of these facilities, issuance of authorization, compliance status of environmental conditions w.r.t emission & effluent norms are detailed below:

a. Related to duties and responsibilities

- Clause 15 (r) of SWM Rules, 2016 local authorities shall transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility

- Further, as per clause 15 (v) of SWM Rules, 2016, the local authorities and Panchayats shall facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilization of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralized processing to minimize transportation cost and environmental impacts such as-

  a) bio-methanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilization of biodegradable wastes;

  b) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;

- As per clause 16 of SWM Rules, 2016, The State Pollution Control Board or Pollution Control Committee shall, -

  (b) monitor environmental standards and adherence to conditions as specified under the Schedule I and Schedule II for waste processing and disposal sites;

  (c) examine the proposal for authorization and make such inquiries as deemed fit, after the receipt of the application for the same in Form I from the local body or any other agency authorized by the local body

(g) suspend or cancel the authorization issued under clause (a) any time, if the local body or operator of the facility fails to operate the facility as per the conditions stipulated;

b. Related to Criteria for waste to energy process:

Clause 21 of SWM Rules. 2016 specifies the following criteria for waste to energy process:

1) Non-recyclable waste having calorific value of 1500 K/Cal/kg or more shall not be disposed of on landfills and shall only be utilized for generating energy either or through refuse derived fuel or by giving away as feed stock for preparing refuse derived fuel.
2) High calorific wastes shall be used for co-processing in cement or thermal power plants.
3) The local body or an operator of facility or an agency designated by them proposing to set up waste to energy plant of more than five tons per day processing capacity shall submit an application in Form-I to the State Pollution Control Board or Pollution Control Committee, as the case may be, for authorization.
4) The State Pollution Control Board or Pollution Control Committee, on receiving such application for setting up waste to energy facility, shall examine the same and grant permission within sixty days.

c. Related to emission from incinerators /thermal technologies:

Para C of Schedule II of the Solid Waste Management (SWM) Rules, 2016, stipulates the standards for incineration, as given below:

The Emission from incinerators /thermal technologies in Solid Waste treatment/disposal facility shall meet the following standards, namely: -

Standard for incineration

Parameter	Emission standard	
(1)	(2)	(3)
Particulates	50 mg/Nm^3	Standard refers to half hourly average value
HCl	50 mg/Nm^3	Standard refers to half hourly average value
SO2	200 mg/Nm^3	Standard refers to half hourly average value
CO	100 mg/Nm^3	Standard refers to half hourly average value
	50 mg/Nm^3	Standard refers to daily average value
Total Organic Carbon	20 mg/Nm^3	Standard refers to half hourly average value
HF	4 mg/Nm^3	Standard refers to half hourly average value
NOx (NO and NO2 expressed as NO2)	400 mg/Nm^3	Standard refers to half hourly average value

Total dioxins and furans	0.1 ng TEQ/Nm^3	Standard refers to 6-8 hours sampling. Please refer guidelines for 17 concerned congeners for toxic equivalence values to arrive at total toxic equivalence.
Cd + Th + their compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.
Hg and its compounds	0.05 mg/Nm^3	Standard refers to sampling time anywhere between 30 minutes and 8 hours.

Note:

(a) Suitably designed pollution control devices shall be installed or retrofitted with the incinerator to achieve the above emission limits.

(b) Waste to be incinerated shall not be chemically treated with any chlorinated disinfectants.

(c) Incineration of chlorinated plastics shall be phased out within two years.

(d) if the concentation of toxic metals in incineration ash exceeds the limits specified in the Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008, as amended from time to time, the ash shall be sent to the hazardous waste treatment, storage and disposal fcaility.

(e) Only low sulphur fuel like LDO, LSHS, Diesel, bio-mass, coal, LNG, CNG, RDF and bio-gas shall be used as fuel in the incinerator.

(f) The CO2 concentration in tail gas shall not be more than 7%.

(g) All the facilities in twin chamber incinerators shall be designed to achieve a minimum temperature of 9500C in secondary combustion chamber and with a gas residence time in secondary combustion chamber not less than 2 (two) seconds.

(h) Incineration plants shall be operated (combustion chambers) with such temperature, retention time and turbulence, as to achieve total Organic Carbon (TOC) content in the slag and bottom ash less than 3%, or the loss on ignition is less than 5% of the dry weight.

(i) Odour from sites shall be managed as per guidelines of CPCB issued from time to time

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार.
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA.

Email/Speed Post

FileNo CM-11/41/2024-LAW-HO-CPCB-HO **03/10/2024**

To

The Member Secretary
Delhi Pollution Control Committee
(DPCC)4th and 5th Floor, ISBT
Building, Kashmere Gate, Delhi-06 b

Subject: Hon'ble Supreme Court of India order dated 18.09.2024 in Civil Appeal No 13120/2017 in the matter of Ravinder Chanana & Ors Verses The State of Delhi

Sir,

This is in reference to the above mentioned order issued by Hon'ble Supreme Court of India wherein directions given in Para 6 is represented below:

Para 6 " The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks."

In this regard, it is requested to provide information and documents regarding the authorisation & consent issued, Inspection reports, Notice/ Directions issued (if any), Ground water & Ambient air Quality monitoring reports and any other information on matter as available with DPCC for the concerned Waste to Energy (WtE) Plant in Delhi to enable CPCB to take further necessary action in compliance of the aforesaid order. The information may also be emailed to swm.cpcb@gov.in and sunil.cpcb@gov.in on or before 8th October, 2024.

Yours faithfully

(Divya Sinha)

Director and Divisional Head, UPC-II

Encl : As above

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली – 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

ITEM NO.11 COURT NO.5 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

Civil Appeal No(s). 13120/2017

RAVINDER CHANANA & ORS. Appellant(s)

VERSUS

THE STATE OF DELHI DELHI
SECRETARIAT CHIEF SECRETARY & ORS. Respondent(s)

([ONLY IA NO. 189959/2024 IN CA 13120/2017 IS LISTED UNDER THIS ITEM]
(IA No. 189959/2024 - CLARIFICATION/DIRECTION)

Date : 18-09-2024 This matter was called on for hearing today.

CORAM : HON'BLE MR. JUSTICE HRISHIKESH ROY
HON'BLE MR. JUSTICE SUDHANSHU DHULIA
HON'BLE MR. JUSTICE S.V.N. BHATTI

For Appellant(s) Mr. Shadan Farasat, Sr. Adv.
Ms. Sanchita Ain, AOR
Mr. Prannv Dhawan, Adv.

Mr. Sanjay Parikh, Sr. Adv.
Mr. Devvrat, Appellant In Person, Adv.
Ms. Harshita Sharma, Adv.
Mr. Devesh Kumar Agnihotri, Adv.
Ms. Charu Sangwan, AOR
Mr. Nitin Jain, Adv.

For Respondent(s) Mrs. Aishwarya Bhati, A.S.G.
Mrs. Swarupama Chaturvedi, Sr. Adv.
Mr. Mukesh Kumar Maroria, AOR
Mr. Ayush Puri, Adv.
Mrs. Sunita Sharma, Adv.
Mrs. Nidhi Khanna, Adv.
Mr. Shlok Chandra, Adv.

Ms. Aishwarya Bhati, A.S.G.
Mr. Gurmeet Singh Makker, AOR
Ms. Sunita Sharma, Adv.
Mr. Ayush Puri, Adv.
Ms. Nidhi Khanna, Adv.
Mr. Shlok Chandra, Adv.
Ms. Ruchi Kohli, Adv.

Mr. Pradeep Misra, AOR

Mr. Daleep Dhyani, Adv.
Mr. Suraj Singh, Adv.

Mr. Avijit Roy, AOR

Mr. Ranjit Kumar, Sr. Adv.
Mr. Nilava Bandyopadhyay, Adv.
Ms. Vijaya Singh, Adv.
Ms. Ankita Sinha, Adv.
Mr. Sahil Kumar Purvey, Adv.
Mr. Prem Prakash, AOR

Ms. Garima Prashad, Adv.
Mr. Sudeep Kumar, AOR
Ms. Manisha, Adv.

Mr. S Wasim A Qadri, Sr. Adv.
Dr. Menaka Guruswamy, Sr. Adv.
Mr. Utkarsh Pratap, Adv.
Ms. Arunima Das, Adv.
Mr. Devadita Das, Adv.
Mr. Ravi Kumar, Adv.
Mr. Achintya Kumar Niyogi, Adv.
Mr. Praveen Swarup, AOR

Mr. Yoginder Handoo, AOR
Mr. Sanjay Kumar Visen, AOR

UPON hearing the counsel the Court made the following

O R D E R

I.A. No. 189959/2024

Heard Mr. Sanjay Parikh and Mr. Shadan Farasat, the learned senior counsel appearing for the petitioners/applicants. Also heard Dr. Menaka Guruswamy, learned senior counsel appearing for the Municipal Corporation of Delhi (Respondent No.2) and Mr. Ranjit Kumar, learned senior counsel appearing for the Project Proponent (Respondent No.9). The Central Pollution Control Board is represented by Mr. Avijit Roy, learned counsel.

2. This pertains to the interim application in respect of the project of respondent no.9. When similar such interim application was filed earlier, on the expansion undertaken by the Waste to

Energy Plant by the respondent no.9, this Court on 05.04.2023 had passed the following order:-

> "1. The Interlocutory Application for impleadment (IA No 40462/2023 is allowed.
> 2. The Interlocutory Applications are to seek a stay on the expansion of the capacity of the Waste to Energy Plant at Okhla from 23 MW to 40 MW.
> 3. Mr Ranjit Kumar, senior counsel appearing on behalf of the Ninth Respondent states that in pursuance of the permission which has been received, the process of expansion and operationalising the plant to the enhanced capacity would take about 18 months.
> 4. In view of the above statement of Mr Ranjit Kumar, it is not necessary to entertain the Interlocutory Applications at the present stage.
> 5. However we have acceded to the request of all the counsel that the Civil Appeal be listed for final disposal at an early date.
> 6. List the Civil Appeal along with IA No 49339 of 2023 on 19 July 2023.
> 7. Any steps which are taken by the concessioner towards implementing the 4 permission for enhancement of the capacity from 23 MW to 40 MW shall be subject to the final result of the appeal and shall not create any equities.
> 8. To facilitate the final disposal of the proceedings, counsel appearing on behalf of the contesting parties shall prepare a common compilation of documentary and other material that is sought to be relied upon.
> 9. Mr Devvrat, counsel for the appellant and Mr Nilava Bandyopadhyay, counsel assisting Mr Ranjit Kumar shall act as nodal counsel to ensure that soft copies of the compilations are prepared and circulated to the Bench and to the counsel appearing on behalf of the contesting parties. The soft copies of the compilations shall also be emailed to cmvc.dyc@gmail.com.
> 10. Parties shall also file brief sets of written submissions by 30 June 2023.
> 11. IA Nos 10266, 40464, and 40945 are accordingly disposed of."

3. As can be seen from above, the expansion was permitted to be made subject to the outcome of the pending Civil Appeal.

4. The National Green Tribunal in its impugned detailed order on 02.02.2017, had indicated how the project is being developed and the measures that are being taken by the Project Proponent to avoid

pollution, based upon improved technology and new mechanism for segregation of waste. Multiple inspections carried out by the National Green Tribunal indicated that the emission from the plant is below the prescribed value and there is no adverse impact on health and the environment.

5. Be that as it may, Mr. Parikh and Mr. Farasat, learned senior counsel would submit that if the expanded capacity is to commence operation, there might be a change of situation. This contention is stoutly resisted not only by the learned counsel for the Project Proponent but also by the counsel for the Municipal Corporation of Delhi.

6. The Central Pollution Control Board should accordingly carry out an inspection and furnish a report. Needful be done in six weeks.

(GEETA JOSHI)
SENIOR PERSONAL ASSISTANT

(KAMLESH RAWAT)
ASSISTANT REGISTRAR

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

Original Application No. 640/2018

In

(Earlier O. A. No. 22/2013(nuc))

In the matter of: -

Sukhdev Vihar Residents Welfare Association — Applicant(s)

Versus

State Of NCT of Delhi — Respondent(s)

Index

Sr. No.	Particulars	Page No.
1.	**Compliance Report** of Waste to Energy Plants in Delhi in Original Application No. 640/2018 (Earlier O. A. No. 22/2013(nuc)) in the matter of Sukhdev Vihar Residents Welfare Association Vs State Of NCT of Delhi in compliance to the Hon'ble NGT orders dated 09.10.2017 & 27.09.2018 respectively.	
2.	**Annexure-I:** A copy of Hon'ble NGT orders dated 09.10.2017 & 27.09.2018.	

(Divya Sinha)
Scientist-E
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
Delhi- 110032.

Date: 22.03.2021
Place: Delhi

Compliance Report of Waste to Energy Plants in Delhi

(Period: September-October, 2020)

As per Hon'ble NGT Vide its Order dated 09/10/2017, in OA No. 22 of 2013 THC & dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013)

CENTRAL POLLUTION CONTROL BOARD
(Ministry of Environment, Forest & Climate Change, Govt. of India)
'Parivesh Bhawan' C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi-110032
E-mail:divsinha@yahoo.com, Website- www.cpcb.nic.in

March, 2021

1. Background

1.1. Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 THC, directed Central Pollution Control Board to collect and analyse the samples of ambient air quality once in four months, and they shall also conduct at least two surprise inspections and analysis be made in a year from M/s. Timarpur Okhla Waste Management Company Ltd.

1.2. Further Hon'ble NGT vide its order dated September, 27, 2018 in OA No. 640/2018 (Earlier OA No. 22/2013), issued the following directions:

i. *In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection of Waste to Energy (WtE) Plants at Delhi has been conducted by the CPCB and the DPCC. Findings of reports are that WtE plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of Particulate matter.*

ii. *"Directed CPCB to send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste to Energy Plant for compliance and conduct another inspection within one month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months We do not find any ground to accept the prayer for reliving CPCB of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the CPCB to make any other appropriate arrangement for discharging its functions. This cannot be the ground to avoid responsibility under the binding directions of this Tribunal"*

iii. *"It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint Inspection Report, CPCB may recommend the amount of environmental damage required to be paid by them".*

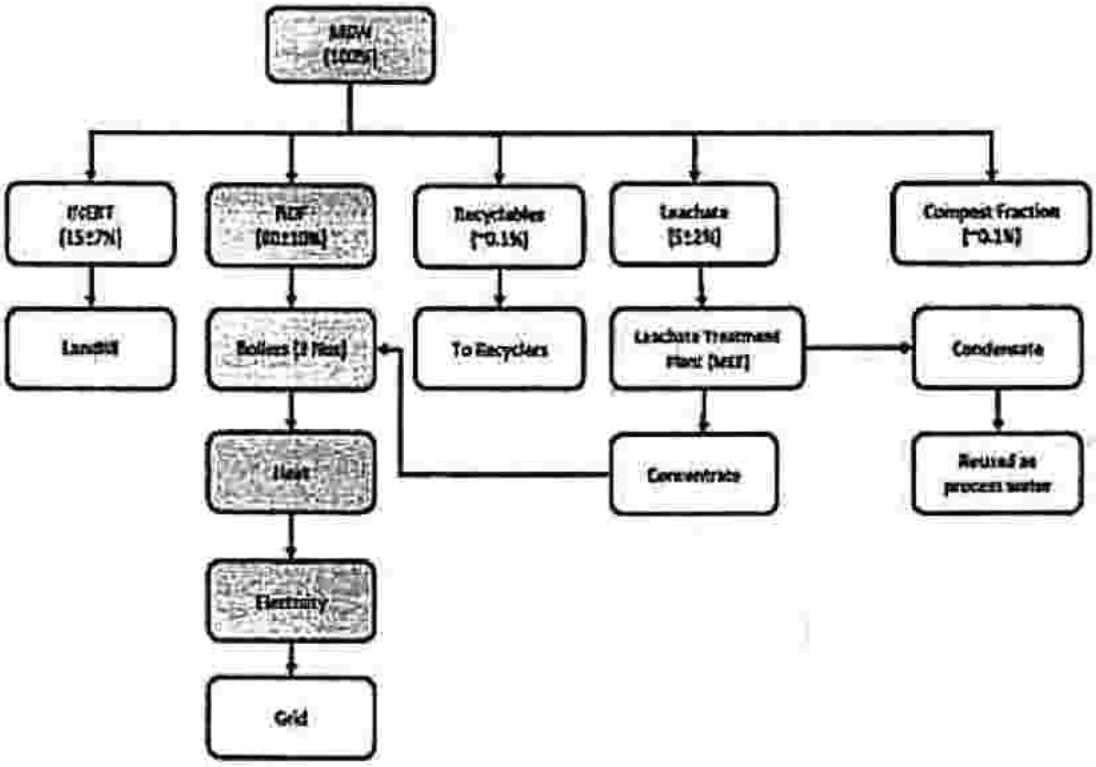
In view of above directions, monitoring was planned during September & October, 2020 of Okhla, Bawana & Gazipur WtE plants. However, due to non-working of the Waste to Energy Plant Ghazipur on 16.09.2020 monitoring could not be carried out. The remaining two plants viz. Okhla & Bawana were subsequently monitored by CPCB & DPCC joint inspection team during September, 21-22, 2020 and September 24-25, 2020 respectively. The members of joint committee i.e. representatives from MoEF & CC , expert from IIT Delhi and representative of Sukhdev Vihar RWA (For Okhla Waste to Energy Plant) were informed vide email dated September 11, 2020 regarding the inspection schedule. Representative from MoEF &CC, expert from IIT Delhi were not present during the inspection of Waste to Energy Plants Okhla & Bawana and representative of RWA Sukhdev Vihar was not present during inspection of Okhla. Further, subsequent to Ghazipur Plant becoming

operational, joint inspection team from CPCB, DPCC and expert from IIT, Delhi monitored the plant on October 13-14, 2020. The inspection reports of the three WtE plants is given in the following sections.

Waste to Energy Plant Okhla

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry	M/s Timarpur Okhla Waste Management Company Limited, Old NDMC Compost Plant, Behind CRRI, Mathura Road, New Delhi-110025
	Coordinates (Longitude & Latitude)	Lat. 28.553672 & Long. 77.280838
2.	Name of the occupier/contact person with	Mr. Sandeep Dutt
	Telephone	Mob. 09958360016
	Fax	
	E-mail	Sandip.dutt@jindalcopolls.com
3.	Date of inspection / monitoring	September 21-22, 2020
4.	Installed processing Capacity (as per consent)	As per DPCC Authorization letter dated 21.05.2020 the unit has capacity to process 1950 TPD MSW for subsequent generation of 23 MW power.
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
21.09.2020	6 AM to 6 PM	18.94	21.61
22.09.2020	6 AM to 6 PM	18.68	21.11

7.	**Process Flow Diagram** The unit has own segregation setup of MSW having two trommels with ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below: 

8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Three boilers connected to one stack)	60 mtrs	Scrubber followed by bag filters	Stack Monitoring Conducted by CPCB team & results are tabulated at **Table – 1**

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality (Conducted at two locations namely Sukhdev Vihar & STP Okhla)	Ambient Air Quality Status are tabulated at **Table-2**

11.	Continuous Ambient Air Quality Station	CAAQMS not yet Installed
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are tabulated at Table-3

Table 1: Analysis results of the stack emission monitoring of the WtE plant Okhla

S. No.	Parameters	Monitor by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values	
					21-22 September, 2020	Stack	
1.	PM	CPCB	30 mg/Nm³	50 mg/Nm³		10.7	4.4
2.	Hydrogen Chloride		50 mg/Nm³	50 mg/Nm³		198	
3.	SO_2		100 mg/Nm³	200 mg/Nm³		BDL	BDL
4.	NO_x (NO and NO_2 expressed as NO_2)		350 mg/Nm³	400 mg/Nm³		90.3	86.6
5.	CO		100 mg/Nm³	100 mg/Nm³		1.8	
6.	HF		0.5 mg/Nm³	4 mg/Nm³		BDL	
7.	Sb + As + Pb +Cr+ Co+ Cu+ Mn + Ni+ V+ their compounds		0.5 mg/Nm³	0.5 mg/Nm³		0.012	
8.	Cd + Th +their compounds		0.05 mg/Nm³	0.05 mg/Nm³		-	
9.	Pb		0.1 mg/Nm³	Not prescribed		0.004	
10.	Hg		0.02 mg/Nm³	0.05 mg/Nm³		BDL	
11.	Dioxin & Furans	M/s SRL, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	22-10.2020	0.99	
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		7.2	

Table-2. 24 hourly average values of ambient air quality monitoring

Date of sampling	Monitored by	Parameters	Prescribed Standard* (In µg/m³)	Measured values	
				Sukhdev Vihar Location-I	STP Okhla Location-II
21-23 September 2020	CPCB	PM_{10}	100	85.66	72.33
		$PM_{2.5}$	60	78	39
		NO_2	80	41.66	26.33
		SO_2	80	8.166	39

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 3: Analysis results of Bottom ash and Fly ash

Date of sampling	Parameters	Standard/Limit	Measured values	
21.09.2020	Loss on Ignition (for Bottom ash only)	<5%*	2.29%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.05	0.26
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	0.03	0.05
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.29	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.03	0.15
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

*Standards prescribed by DPCC in the Consent to Operate.
#Concentration Limit to categorise as hazardous waste as per the Hazardous and Other Wastes (Management and Tran boundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act	Valid till 24.09.2024
II	Under Air Act	Valid till 24.09.2024

14. Observations:

a. The processing capacity of the plant is 1950 TPD. However as informed, the plant received only 1652.51 TPD of mixed Municipal Solid Waste (MSW) on 21.09.2020.

b. As informed, total RDF generation in the plant is approximately 1350 TPD. As per the logbook RDF used as fuel in boilers on 21.09.2020 & 22.09.2020 is tabulated at Table 4:

Table 4: RDF Feed Record

RDF Feed (21-09-2020)					
S. No	Feeding Duration		Boiler 1	Boiler 2	Boiler 3
1	06:00	07:00	17.8	17.3	17.6
2	07:00	08:00	17.1	17.8	17.2
3	08:00	09:00	16.9	16.8	16.7
4	09:00	10:00	17.4	16.7	17.7
5	10:00	11:00	17.0	18.2	19.1
6	11:00	12:00	18.0	17.0	16.9
7	12:00	13:00	17.4	18.0	17.5
8	13:00	14:00	18.0	17.2	17.8
9	14:00	15:00	18.0	16.8	16.1
10	15:00	16:00	17.6	17.2	17.9
11	16:00	17:00	23.4	16.4	17.7
12	17:00	18:00	17.2	16.6	17.7
	Total Feed		215.8	206.0	209.9

RDF Feed (22-09-2020)					
S. No	Feeding Duration		Boiler 1	Boiler 2	Boiler 3
1	06:00	07:00	24.8	18.2	18.5
2	07:00	08:00	17.2	18.6	18.8
3	08:00	09:00	21.6	18.0	17.7
4	09:00	10:00	17.3	18.2	22.7
5	10:00	11:00	16.6	18.6	15.5
6	11:00	12:00	18.4	20.8	18.1
7	12:00	13:00	18.7	18.6	17.8
8	13:00	14:00	19.0	18.6	22.4
9	14:00	15:00	25.2	18.2	18.2
10	15:00	16:00	18.6	23.8	18.5
11	16:00	17:00	18.1	18.3	18.6
12	17:00	18:00	18.3	18.6	18.3
	Total Feed		233.8	228.5	225.1

c. All the three boilers along with pollution control devices were found operational.

d. The temperature of furnace was maintained between 950-1050°C.

e. Details of power generation during the said inspection is plotted at **Figure 1.**

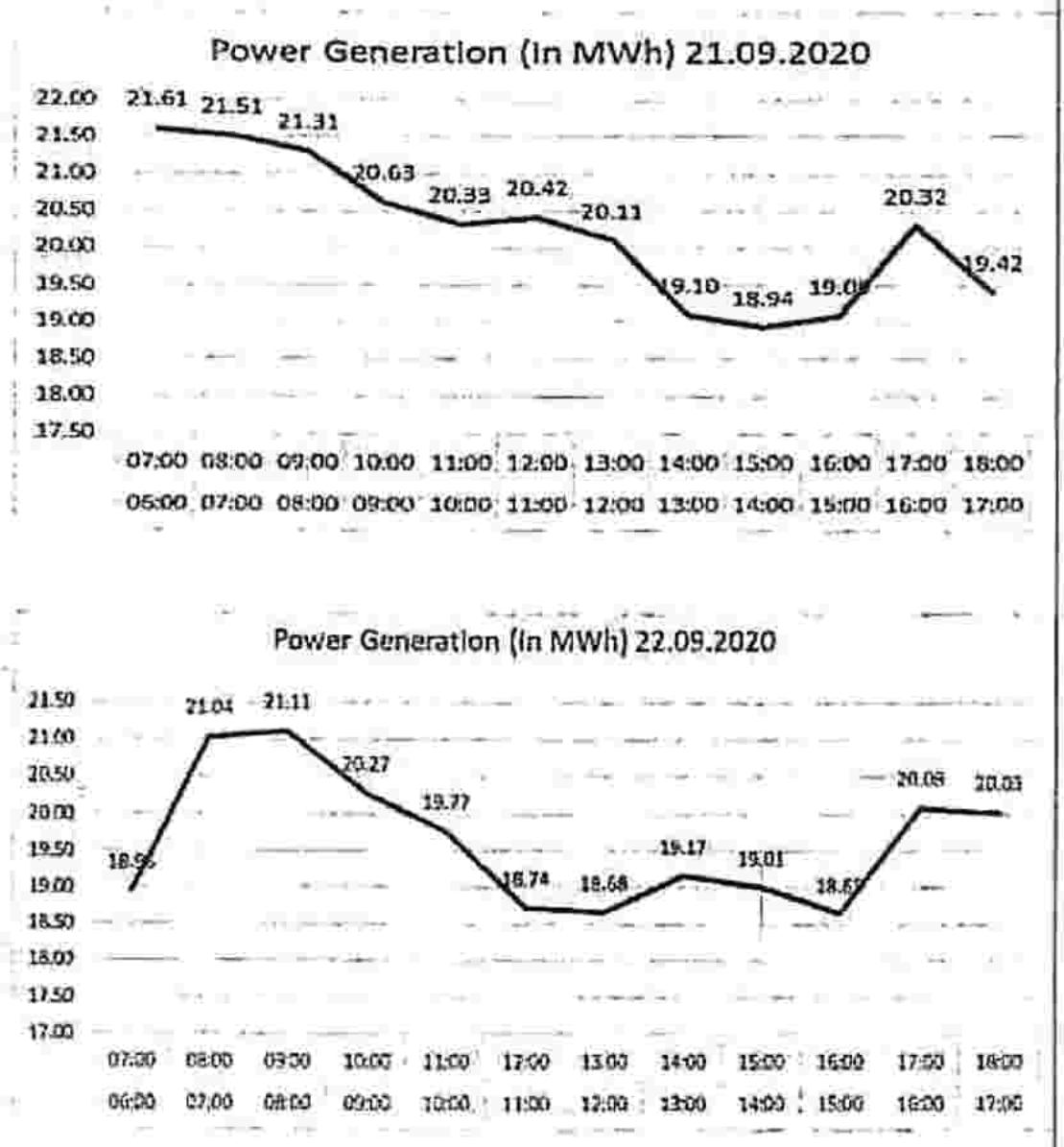


Figure 1: Time vs. power generation plot dated 21 & 22nd September, 2020

f. It is observed that power generation during the monitoring (18.5-21.5 MW) less than the rated power generation capacity (23 MW) of the plant.

g. Stack emission monitoring results are given in Table 1. Following are the observations:

i. The Dioxin and Furans values (0.99 ngTEq/Nm³) of stack monitoring exceeded the permissible limit (0.1 ngTEq/Nm³) monitored by Shriram Institute of Industrial Research (SRI), Delhi.

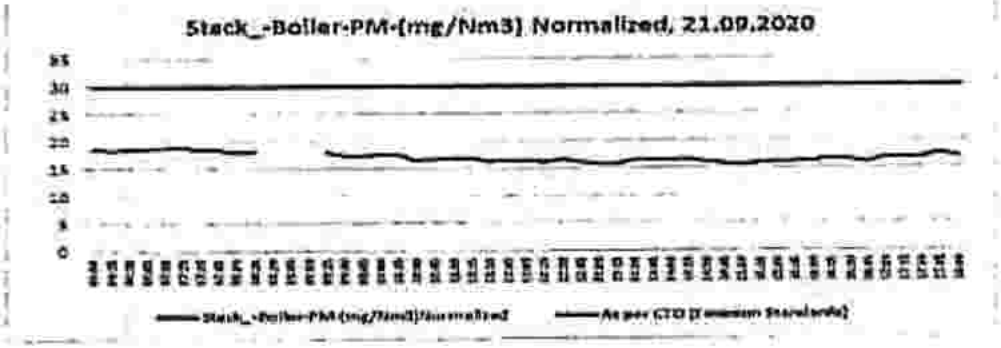
ii. **HCL parameter (198 mg/Nm³) of stack emission monitored by CPCB exceeded the prescribed limit** (50 mg/Nm³)

iii. Remaining parameters were within the stipulated norms.

h. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 21.09.2020 is plotted at **Figure-2.** Comparison of OCEMS data with joint monitoring results is also tabulated in **Table 5.** Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl level as per actual monitoring is higher than that reported by OCEMS. Also levels of PM, SO_2 and NOx as per actual monitoring is higher than that reported by OCEMS.

Table-5: Comparison of OCEMS and joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint inspection results
1.	PM mg/Nm³	15-20	4.4-10.7
2.	HCL mg/Nm³	10-30	198
3.	NO_x mg/Nm³	150-200	85-90
4.	SO_2 mg/Nm³	40	BDL



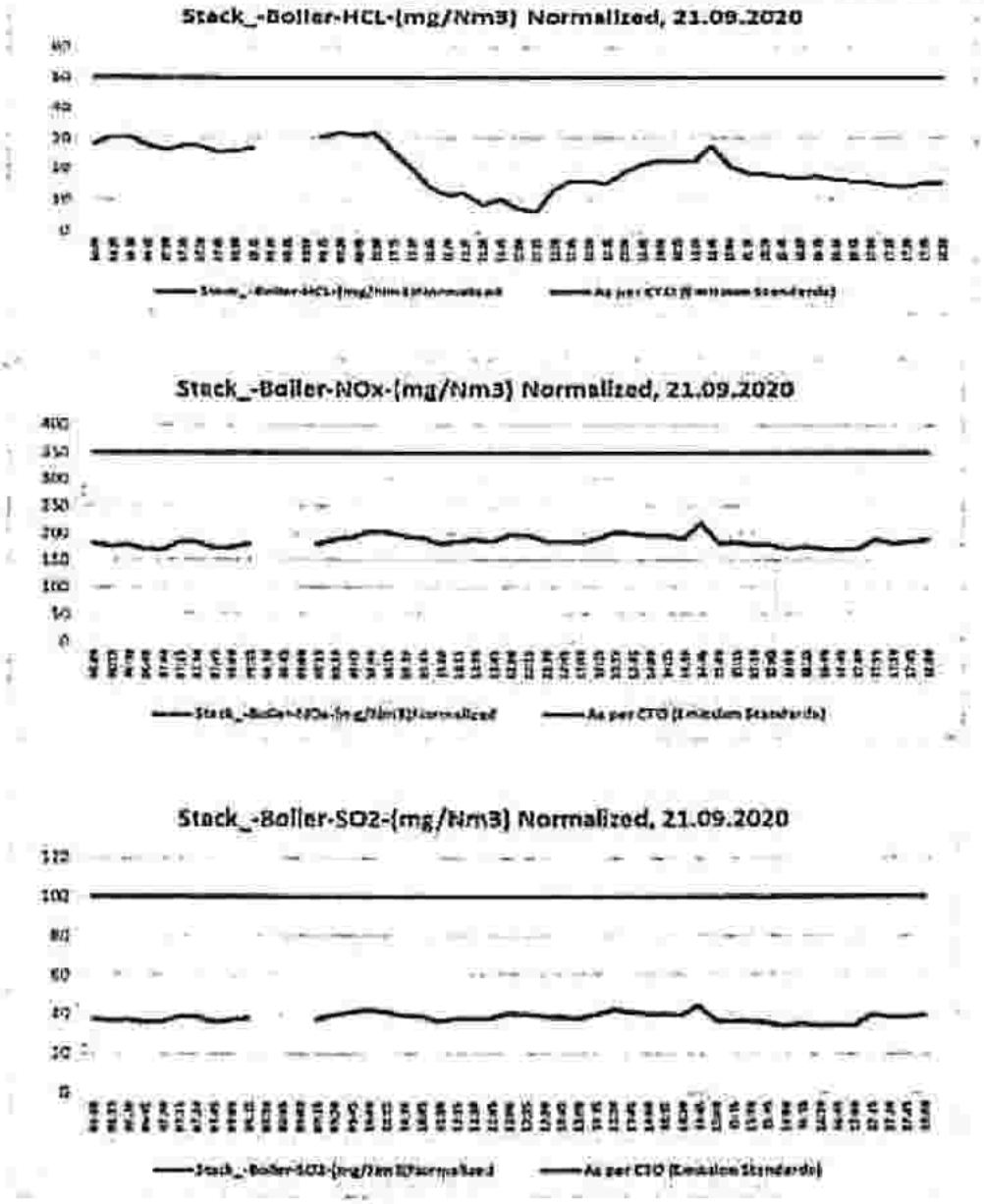


Figure-2: Online Continuous Emission Monitoring System (OCEMS) data for PM, SO_2, NO_x and HCL on 21.09.2020.

I. Ambient Air Quality monitoring results are given in **Table 2.** It is observed that PM2.5 (78 µg/m³) exceeded the prescribed limit (60 µg/m³) at Sukhdev Vihar monitoring station. Remaining parameters were found within the limit of both monitoring stations (STP Okhla & Shukdev Vihar).

J. M/s. Timarpur Okhla Waste to Energy plant has placed order to M/s JITF ECOPOLIS for purchase of Continuous Ambient Air Quality Monitoring Station (Copy enclosed).

k. Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash are in **Table-3.** It is observed that monitored levels of all the parameters are within the specified limit.

l. Fly ash bricks manufacturing unit is installed but was not operational during the inspection.

m. Plant has installed water sprinkling system for dust settlement.

n. To control the emission of flue gas, the unit is using $Ca(OH)_2$ and Hydrophobic Organic Carbon (HOC) as dosing and approximately 172 Kg/h and 54.2 Kg/h of $Ca(OH)_2$ and HoC used for dosing during inspection on 21.09.20.

o. During inspection, Multi effect evaporator (MEE) was found operational for treatment of leachate and the treated water was reused as process water.

p. As informed average 250 MT of inerts are produced every day and disposed of at Jaitpur site.

q. Radioactive sensors are installed at gate no. 2 of plant.

r. Plant has maintained considerable greenery inside the premises and along boundary wall.

15. Recommendations

i. Plant to properly control production process and pollution control equipment to ensure that all parameters including Dioxin & Furans and HCl are within the stipulated norms.
ii. Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ concentration) in and around the plant.
iii. OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
iv. Okhla plants should utilize 100 % Fly ash for beneficial purposes like bricks manufacturing etc. and time bound Action Plan to be submitted for the same.
v. The plant to specify the timeframe within which the online continuous ambient air quality monitoring station shall be installed.

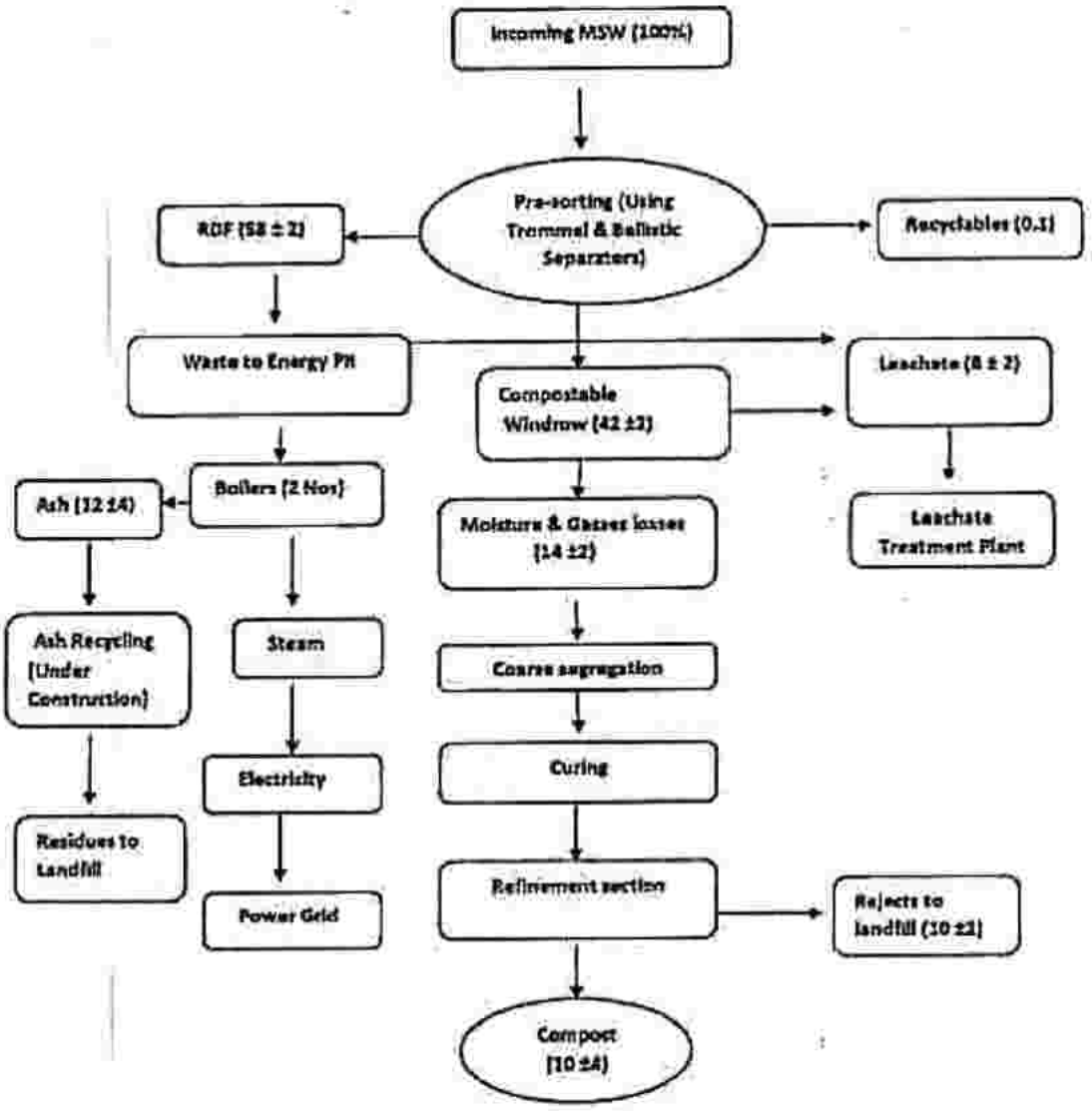
Waste to Energy Plant Bawana

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s Delhi MSW Solutions Ltd. Pocket N-1, Sector-5, Bawana Industrial area, Behind Pragati Power Plant Delhi-110039 Latitude Extension: 28°47'58.36"N Longitudinal Extension: 77° 04'11.79"E
2.	Name of the occupier/contact person with Telephone Fax E-mail	K Vijay Kumar Reddy Mob. 9821124350 laboratorynarela@ramky.com
3.	Date of inspection and monitoring	September, 24-25, 2020
4.	Installed processing Capacity (as per consent)	2000 TPD Processing and Disposal facility with 24 MW Waste to Energy Plant
5.	Production status (on date of inspection)	Operational
6	Actual Power Generation	Details of power generation ranges during the said inspection

Date	Power Generation (MW)		
	Time	Minimum	Maximum
24.09.2020	6 AM to 1 PM	22.3	21.1
25.09.2020	6 AM to 6 PM	21.4	20.1

7. **Process Flow Diagram:**

The unit has own segregation setup of MSW having 13 trommels with 4 ballastic separators for segregation of MSW and production of RDF. The detailed materials flow sheet is as given below:



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
Stack of the Waste to Energy plant (Two boilers connected to one stack)	60 mtrs	Reaction Tower (lime Spray reactor), Activated Carbon Injection followed by Bag filters.	Stack Monitoring Conducted by CPCB team & Dioxin & Furans by M/s SIIR, Delhi. Results are given in Table-6

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality monitoring Conducted at two locations at near main gate of the plant and fire station Bawana	Ambient Air Quality Status given in Table – 7
11.	Continuous Ambient Air Quality Station	CAAQMS Installed & was working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash result in Table-8

Table 6. Analysis results of the stack emission monitoring of the WTE plant Bawana

S. No.	Parameters	Monitored & Analysed by	Standards as per Consent to Operate issued by DPCC	Standards as per Solid Waste Management Rules, 2016,	Date of Sampling	Measured values in mg/Nm³
1.	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	24-25 September, 2020	16.7, 12.8
2.	Hydrogen Chloride	CPCB	50 mg/Nm³	50 mg/Nm³		3.35
3.	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, BDL
4.	NO_x	CPCB	350 mg/Nm³	400 mg/Nm³		17.7, 82.0
5.	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6.	Hydrogen Fluoride	CPCB	0.5 mg/Nm3	4 mg/Nm³		BDL
7.	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5mg/Nm³	0.5mg/Nm³		0.058
8.	Cd + Tl + their compounds	CPCB	0.05mg/Nm³	0.05mg/Nm³		-
9.	Pb	CPCB	0.1mg/Nm³	Not prescribed		0.006
10.	Hg	CPCB	0.02mg/Nm³	0.05mg/Nm³		BDL
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	28.10.2020	0.49
12.	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		5.1

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 7: 24 hourly average ambient air quality monitoring conducted by CPCB at WtE Plant Bawana

Parameters	Date of sampling	Monitored by	Prescribed Standard* (In µg/m³)	Measured values	
				Fire Station Bawana Location-I	Near main gate Location-II
PM_{10}	23-25 September, 2020	CPCB	100	131.33	89.33
$PM_{2.5}$			60	84.00	40
NO_2			80	36.33	17.00
SO_2			80	11.66	10.66

**National ambient air quality standards as notified on dated 16.11.2009 under the Environment Protection Act, 1986.*

Table 8: Analysis results of LOI and heavy metals in Bottom Ash and Fly Ash

Date of sampling	Parameters	Limit	Measured Values	
24 September, 2020	Loss on Ignition (for bottom ash only)	<5%*	1.67%	
			Bottom Ash	Fly Ash
	Arsenic	5 mg/l#	BDL	BDL
	Cadmium	1 mg/l#	BDL	BDL
	Chromium	5 mg/l#	0.08	0.69
	Manganese	10 mg/l#	BDL	BDL
	Lead	5 mg/l#	BDL	BDL
	Selenium	1 mg/l#	BDL	BDL
	Copper	25 mg/l#	0.01	BDL
	Nickel	20 mg/l#	BDL	BDL
	Zinc	250 mg/l#	0.02	0.04
	Cobalt	80 mg/l#	BDL	BDL
	Vanadium	24 mg/l#	BDL	BDL
	Antimony	15 mg/l#	BDL	BDL

BDL: for Lead <0.013 ug/l, Selenium < 0.019ug/l, for Copper < 0.003 ug/l, for Nickel < 0.003 ug/l, for Cobalt < 0.002 ug/l and Vanadium < 0.16 ug/l.
#Concentration Limit to categorize as hazardous waste as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, notified under the Environment (Protection) Act, 1986.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Valid till 05-05-2021
II	Under Air Act (Copy enclosed)	Valid till 05-05-2021

14. Observations

During the inspection on 24-25, September, 2020 following observations were made.

a) The processing capacity of the plant is 2000 TPD. However, the plant receipts 2794 MT and 2600 MT of Municipal Solid Waste on 24.09.2020 & 25.09.2020 respectively, which is more than the consented capacity of the plant.

b) The unit has own segregation setup of MSW having 6 trommels with blastic separators for segregation of MSW and production of RDF. Ferrous waste is segregated manually as well as through magnetic separator installed at conveyor belt of ballistic separators. Plant Machinery Details DMSWSL Bawana is tabulated in table 9:

Table 9: Detailed machinery used during segregation of MSW

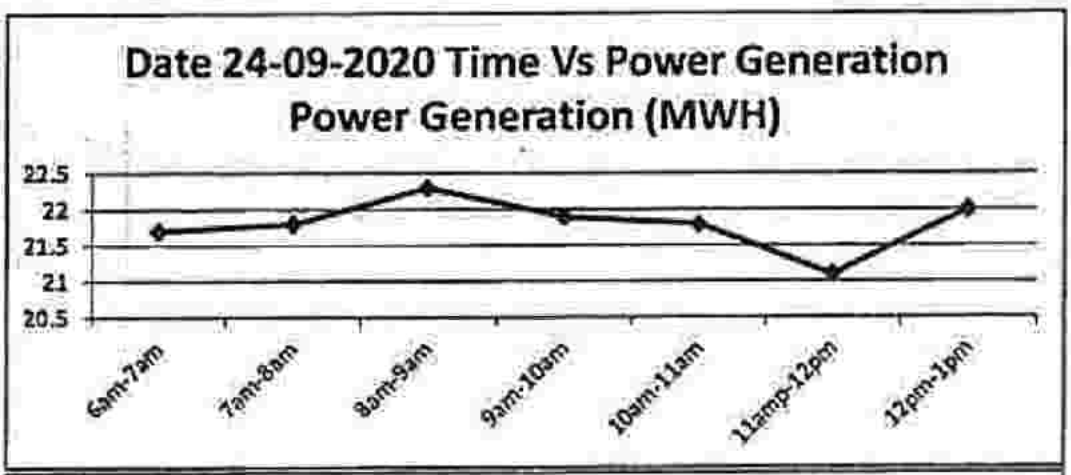
Section Wise	Equipment Name	Number of Machinery
Pre Sorting	Trommels- 50 mm	6 No's
	Ballastic Separator	4 No's
Preparatory Section	Trommels- 20 mm	4 No's
Refinement Section	Trommels- 4 mm	3 No's
Bio Mining	Puzolana	1 No's

c) As informed, total RDF generation in the plant is approximately 1500 TPD. As per the logbook RDF used as fuel in boilers on 24.09.2020 is tabulated at Table 10:

Table 10: RDF Feed Record on 24.09.2020

Sl. No.	Time	RDF Feeding (TPH)
1.	9-10 AM	54
2.	10-11 AM	52
3.	11-12 PM	56
4.	12-1.0 PM	58
5.	1.0-2.0 PM	56
6.	2.0-3.0 PM	52

d) Details of power generation ranges during the said inspection period is placed at **Figure 3.** It is observed that power during the monitoring was less than the (20-22.5 MW) below the rated power generation capacity (24 MW) of the plant-although the plant was processing waste at full capacity.



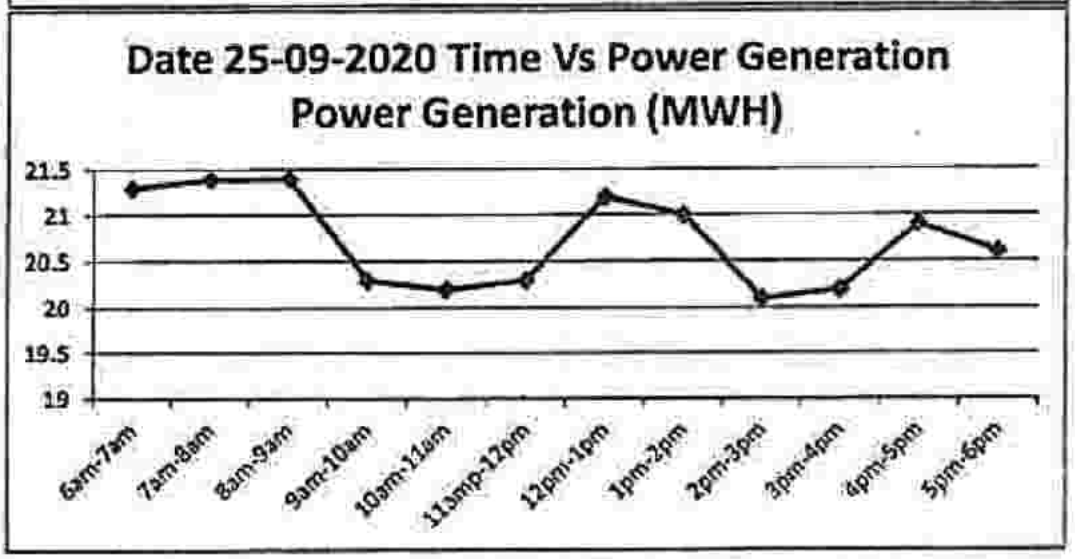


Figure 3: Time vs. power generation plot dated 24 & 25th September, 2020.

e) At the time of inspection on 24.09.2020, plant tripped due to grid fluctuation (High voltage) from 1 PM to 5.30 PM.

f) The two boilers and attached pollution control devices were found operational during monitoring. The temperature of furnace was maintained between 1142-1162°C.

g) Stack emission are tabulated in **Table 6**. It was observed that:

I. Dioxin and Furans values (**0.49 ngTEq/Nm³**) are exceeding the permissible limit (**0.1 ngTEq/Nm³**) monitored by M/s. SRI, Delhi,

II. Remaining parameters were within the stipulated norms.

h) Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCL in the stack emission had been installed and it was found working at the time of inspection. Result obtained from OCEMS on 25.09.2020 are plotted in **Figure-4**. Comparison of OCEMS data with joint monitoring results is tabulated in **Table 11**. Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCL level as per actual monitoring is less than that reported by OCEMS. Also levels of PM, SO2 and NOx as per actual monitoring is less than that reported by OCEMS.

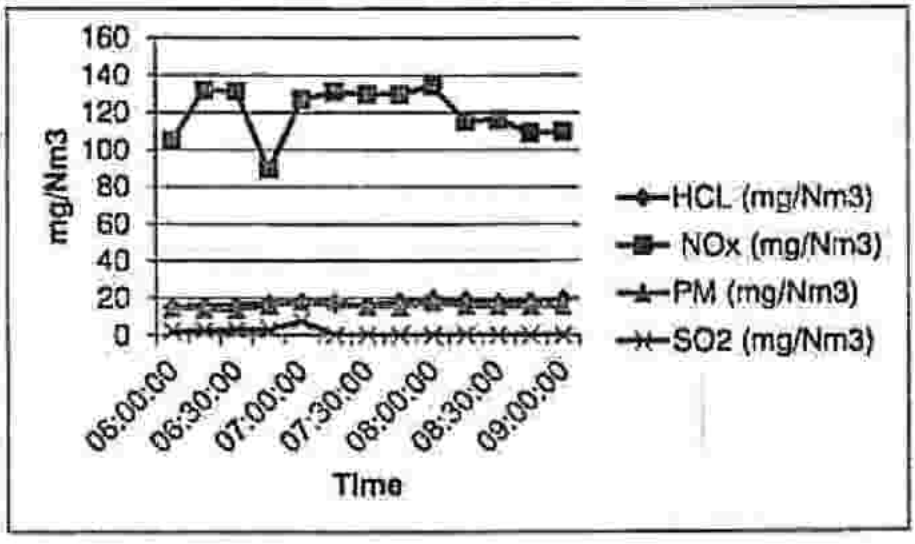


Figure 4: Online Continuous Emission Monitoring System (CEMS) data for PM, SO_2, NOx, and HCL on 24.09.2020.

Table 11: Comparision of OCEMS data and Joint monitoring data of Stack emission

Sl. No.	Parameters	OCEMS	Joint inspection results
1.	PM mg/Nm3	13.8-18.41	12.8-16.7
2.	HCL mg/Nm3	15.02-19.48	3.35
3.	NO_x mg/Nm3	89.4-131.94	17.7-82
4.	SO_2 mg/Nm3	0.01-7.6	BDL

i) Ambient Air quality monitoring results are given in **Table 7.** It is observed that PM2.5 (84 µg/m³) & PM_{10} (131. 33 µg/m³) exceeded the prescribed limit (60 µg/m³ &100 µg/m³) at Fire Station Bawana. Concentration levels of the remaining parameters are within the stipulated norms.

j) Online Continuous Ambient air quality monitoring station (CAAQMS) has been installed at facility & data is tabulated in **Table 12** for 25.09.2020. It observed that values of PM_{10} exceeded the standard limit at 12.00 noon (176 µg/m³), 2.30 PM (166.5µg/m³), 3.15 PM (190.1µg/m³) and 4.00 PM (202.1µg/m³) whereas the limit of $PM_{2.5}$ exceeded at 4.00 PM. Other parameters such as SO_2 (6-6.9 µg/m³), NOx (12.9-19.5µg/m³) were found well within the standard limit.

Table 12: Online Continuous Ambient air quality monitoring (CAAQMS) data on 25-09-2020

Time	Parameters						
	SO_2 µg/m³	NO µg/m³	NO_2 µg/m³	NO_x µg/m³	PM_{10} µg/m³	$PM_{2.5}$ µg/m³	CO mg/m³
12.00 noon	6.9	-1.2	15.9	14.7	176	56.4	-0.46
1.00 PM	6.6	-1.2	17.0	15.7	35.3	-1.0	-0.45
2.30PM	5.6	-1.1	13.9	12.9	166.5	-0.6	-0.42
3.15PM	6.0	-1.2	15.6	14.3	190.1	37.8	-0.38
4.00PM	6.9	-.4	19.9	19.5	202.1	68.9	-0.36

k) Analysis reports of loss of ignition (LOI) and heavy metals in fly ash and bottom ash

are in **Table-8.** It is observed that monitored levels of all the parameters are within the specified limit.

l) Segregated rejects, bottom ash and fly ash are disposed into the sanitary landfill site existing within the facility premise at Bawana.

m) Lime and activated carbon are used as a dosing agent in flue gas. Amount of dosing used at the said inspection is plotted as **Figure 5.** The quantity of lime and activated carbon doused is observed to be in the range of 572-667kg/h and 16-23 Kg/hr respectively.

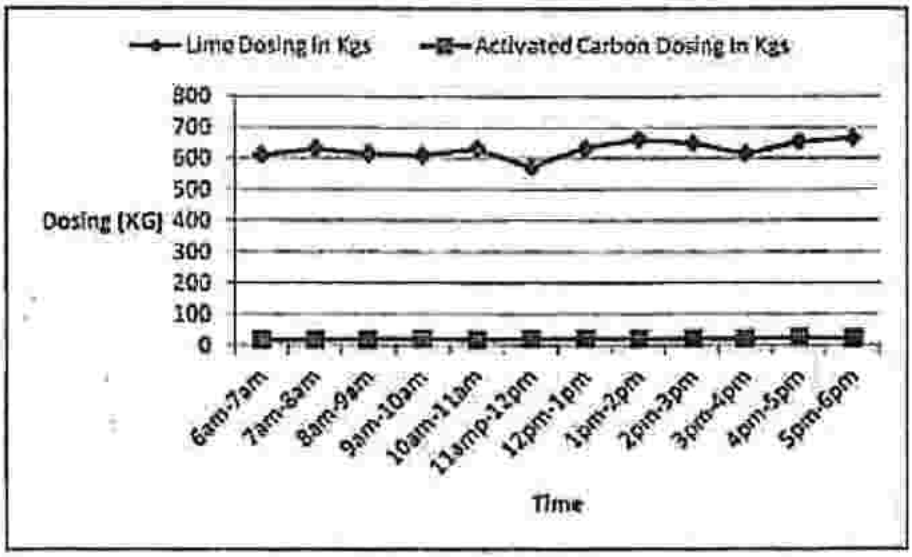


Figure-5: Amount of Lime and Activated Carbon used as dosing on 25-09-2020.

n) Leachate from Waste tipping floor, Windrows floor, sanitary landfill (within its premise) and the open pre-processed storage Area, are treated in the leachate treatment plant and treated water is being used for gardening, road wash etc.

o) Treated leachate analysis report is tabulated in **Table 13.** It has been observed that the values of TDS & Chloride of treated leachate exceeded the standard limit on Land disposal. It is observed that treated leachate is not complying the stipulated standards with respect to TDS & Chloride

Table: 13: Analysis report of treated leachate of Bawana WtE plant

S. No	Parameter	Land disposal (Standards as per SWM Rules, 2016)	Treated Leachate analysis report
1.	Suspended solids, mg/l, max	200	26
2.	Dissolved solids (inorganic) mg/l, max.	2100	6744
3.	pH value	5.5 to 9.0	
4.	Ammonical nitrogen (as N), mg/l, max.	-	1.7
5.	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
6.	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	25
7.	Chemical oxygen demand, mg/l, max.	-	261
8.	Arsenic (as As), mg/l, max	0.2	BDL
9.	Mercury (as Hg), mg/l, max	-	-
10.	Lead (as Pb), mg/l, max	-	BDL
11.	Cadmium (as Cd), mg/l, max	-	BDL
12.	Total Chromium (as Cr), mg/l, max.	-	0.02
13.	Copper (as Cu), mg/l, max.	-	BDL
14.	Zinc (as Zn), mg/l, max.	-	0.06
15.	Nickel (as Ni), mg/l, max	-	BDL
16.	Cyanide (as CN), mg/l, max.	0.2	-
17.	Chloride (as Cl), mg/l, max.	600	1564
18.	Fluoride (as F), mg/l, max	-	-
19.	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

p) As informed, M/s. Waste to Energy plant Bawana has placed order to M/s. Spray Engineering Devices Limited for purchase of 200 KLD Low Temp Evaporator with Mechanical Vapor Recompression (MVR) System.

q) As informed, after segregation 80 MT of compost is being generated per day and sold to the market.

r) Radioactive sensors are installed at entrance gate of the plant & was found working on the date of inspection.

s) Storage and segregation process of MSW being done within a covered area.

t) The facility is collecting solid waste since 2009 and legacy waste of about 0.8 Million MT is being stored in an open area of about 9 acres. This waste is also being processed in the plant.

u) Plant has maintained considerable greenery inside the premises.

15. Recommendations

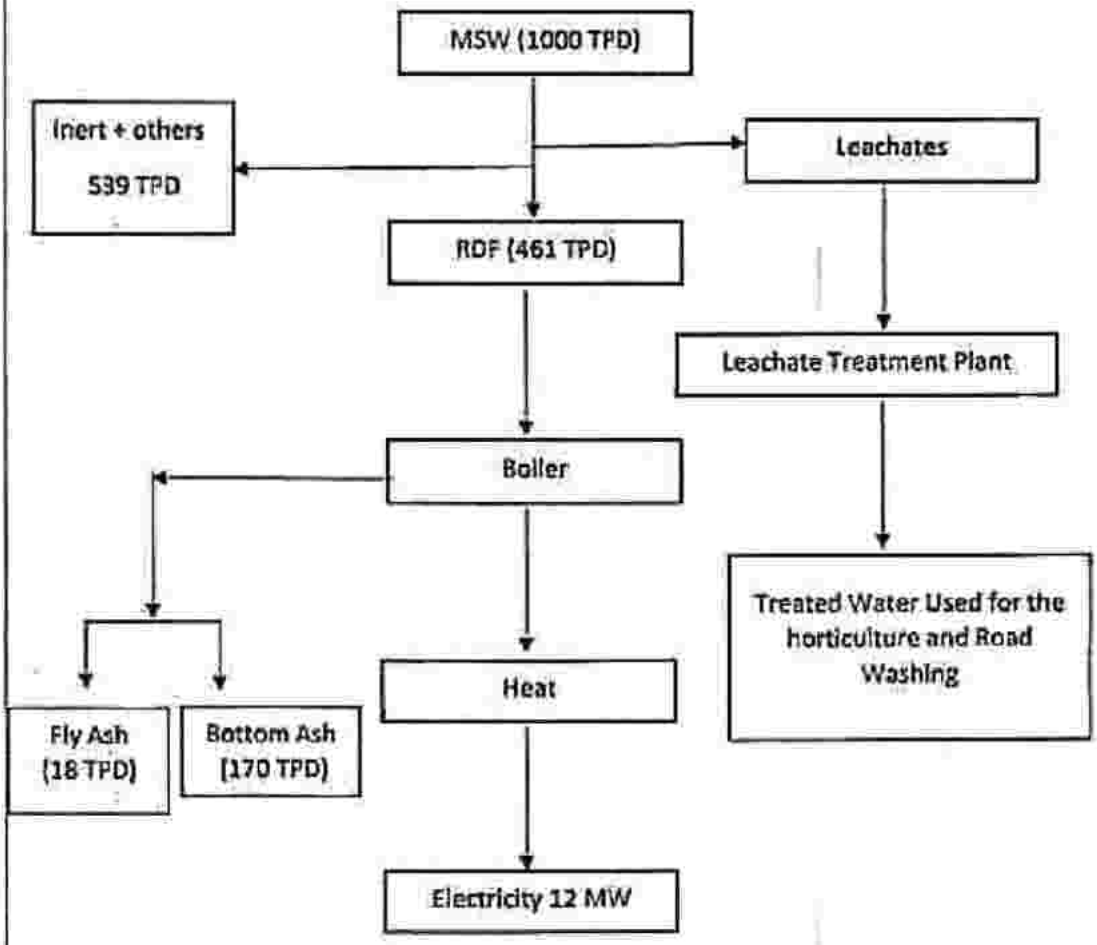
a) Plant should process the waste as per the consented capacity. The production process should be optimized so that power generated from the plant is as per the consented capacity of the plant.
b) Plant to properly control production process and pollution control measures to ensure that all parameters including Dioxin & Furans are within the stipulated norms.
c) Plant should implement necessary measures to improve ambient air quality (including $PM_{2.5}$ & PM_{10} concentration) in and around the plant.
d) OCEMS to be calibrated properly to ensure that OCEMS data matches with actual monitoring results.
e) Time bound action plan to be submitted for implementation of Fly ash and inert material utilization measures.
f) Time bound Action Plan to be submitted for installation of Mechanical Vapor Recompression (MVR) system for leachate treatment.

391

Waste to Energy Plant Ghazipur

CENTRAL POLLUTION CONTROL BOARD, DELHI		
1	Name and address of the industry Coordinates (Longitude & Latitude)	M/s East Delhi Waste Processing Company Ltd. Adjacent to Veterinary Hospital Behind Ghazipur DDA Flats Ghazipur, Delhi- 110096 Lat. 28.622653, Long. 77.323398
2.	Name of the occupier/contact person with Telephone Fax E-mail	Mr. Iype George 8448692608 Iype.George@ilfsindia.com
3.	Date of inspection and monitoring	October, 13-14, 2020
4.	Installed processing Capacity	1300MT of Municipal Solid Waste (MSW) per day for the generation of 12MW electricity.
5.	Production status (on date of inspection)	Operational
6a.	Power Generation Authorized	12MW
6b	Actual Power Generation	**Details of power generation ranges during the said inspection** Date: 13.10.2020 — Power Generation range (MW) 6 AM-6 PM: 3.45 – 8.75

7.	**Process Flow Diagram** The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF.



8. Air Pollution – Emission Sources & Control

Sources of air pollution	Chimney Details	APC Equipment	Emission Quality
One boiler connected with one stack of the waste to energy plant	60 meters	Scrubbing system	Given in Table -14

9.	OCEMS Status	Installed with stack & was found operational during the inspection.
10	Ambient Air Quality Conducted at two locations (Ghazipur Police station location-1 & Delhi Transco Limited Ghazipur Location-2)	Ambient Air Quality results are given in **Table – 15**

11.	Continuous Ambient Air Quality Station	CAAQMS installed but was not working
12.	Bottom Ash & Fly Ash	Analysis results of LOI and heavy metals in Bottom ash and Fly ash are given in **Table - 16**

Table 14. Analysis results of the stack emission monitoring of the WTE plant, Ghazipur monitored and analyzed by CPCB.

S. No	Parameters	Monitored by	Standards as per consent to operate issued by DPCC	Standard as per Solid waste Management Rules,2016	Date of Sampling	Measured Values Stack-1 (Average)
1	Particulate Matter	CPCB	30 mg/Nm³	50 mg/Nm³	13-14 October, 2020	62.7, 85.1
2	HCL	CPCB	50 mg/Nm³	50 mg/Nm³		407
3	SO_2	CPCB	100 mg/Nm³	200 mg/Nm³		BDL, 3.4
4	NOx (NO and NO2 expressed No2)	CPCB	350 mg/Nm³	400 mg/Nm³		869, 104.3
5	Carbon Monoxide	CPCB	100 mg/Nm³	100 mg/Nm³		0
6	Hydrogen Fluoride	CPCB	0.5 mg/Nm³	4 mg/Nm³		BDL
7	Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V+their compounds	CPCB	0.5 mg/Nm³	0.5 mg/Nm³		0.164
8	Cd+Th+their compounds	CPCB	0.05 mg/Nm³	0.05 mg/Nm³		0.002
9	Pb	CPCB	0.1 mg/Nm³	Not prescribed		0.019
10	Hg	CPCB	0.02 mg/Nm³	0.05 mg/Nm³		0.21
11.	Dioxin & Furans	M/s SRI, Delhi	0.1 ngTEq/Nm³	0.1 ngTEq/Nm³	13.10.2020	0.27
12	Total Organic Compounds(as C) at 11%O_2		20mg/Nm³	20mg/Nm³		9.4

* BDL for SO2 is <1.0 mg/Nm³, BDL for HF is <1.0 mg/Nm³, BDL for Hg < 1.0 µg/Nm³

Table 15. 24 hourly ambient air quality monitoring conducted by CPCB

Parameters	Date of Sampling	Monitored by	Prescribed Standard*	Measured values	
				Ghazipur Police station location-1	Delhi Transco Limited Ghazipur Location-2
$PM_{2.5}$	October 13-15	CPCB	60	127	215
PM10			100	273.66	404
NO2			80	42.833	31
SO2			80	BDL	15.66

BDL for SO2 is < 4ug/m3

**National ambient air quality standards as notified under the air (prevention and control of pollution) Act 1981.*

Table 16: Analysis results of LOI and heavy metals in Bottom ash and Fly ash

Date of sampling	Parameters	Limit	Measured values in %	
13.10.2020	Loss on Ignition (For bottom Ash only)	<5%*	1.89	
			Bottom ash	Fly Ash
	Arsenic	5 mg/l #	BDl	BDL
	Cadmium	1 mg/l #	0.52	0.14
	Chromium	5 mg/l #	BDL	BDL
	Manganese	10 mg/l #	3.01	3.15
	Lead	5 mg/l #	0.08	0.04
	Selenium	1 mg/l #	BDL	BDL
	Copper	25 mg/l #	1.52	0.83
	Nickel	20 mg/l #	0.42	0.20
	Zinc	250 mg/l #	10.79	11.43
	Cobalt	80mg/l #	0.12	0.11
	Vanadium	24mg/l #	BDL	BDL
	Antimony	15mg/l #	0.36	0.05

Note: BDL for arsenic <0.022 mg/l BDL for Chromium<0.002 mg/l BDL for Manganese for Lead<0.013 BDL for Nickel BDL, 0.003 mg/l for Cobalt BDL< mg/l for Vanadium BDL<0.16 mg/l

#Concentration Limit of categorise as hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, notified under Environment (Protection) Act, 1986. Facility for fly ash and inert material utilization are yet to installed.

13. Status of validity & compliance of consent and authorization

	Consent/Authorization	Validity
I	Under Water Act (Copy enclosed)	Expired on 08-12-2018, applied for renewal of the same
II	Under Air Act (Copy enclosed)	Expired on 08.12.2018, applied for renewal of the same

14.0 Observations

a. The plant is operating without valid consent. The plant was given Consent-to Operate which was valid upto 08.12.2018. The unit has applied for renewal of Consent.

b. The unit has segregation setup of MSW which consist of trommels with blastic separators for segregation of MSW and production of RDF. However, the same was not operational at the time of inspection. Operator informed that the same is under maintenance.

c. Segregation of waste was being done in partially covered area.

d. The plant was receiving RDF from bio-remediation of waste from Ghazipur dumpsite. No MSW was received from EDMC on that day. Hence, the plant was operating at level much below as per its last consent.

e. The plant does not have composting facility for wet waste and disposing wet waste when generated in the dumpsite.

f. Average feed rate of the RDF to one boiler was observed at 33 MT/hr. As per the logbook total RDF used as fuel in boilers from 6 AM to 6 PM on 13.10.2020 is given in Table 17.

Table 17: RDF Feed Record

Time	Fuel Feed to Boiler MT
6:00 AM	35.28
7:00 AM	35.1
8:00 AM	33.25
9:00 AM	35.89
10:00 AM	36.25
11:00 AM	28.95
12:00 PM	31.25
1:00 PM	32.25
2:00 PM	32.65
3:00 PM	33.25
4:00 PM	31.58
5:00 PM	32.58
6:00 PM	31.58
Total Feed	429.86

g. Details of power generation ranges during the said inspection period is given in Figure 6. The power generation on 13.10.2020 was in the range of 3.45-8.75 MW which is much less than the rated power generation capacity of 12 MW. Captive power utilization of the plant is about 2 to 2.5 MW.

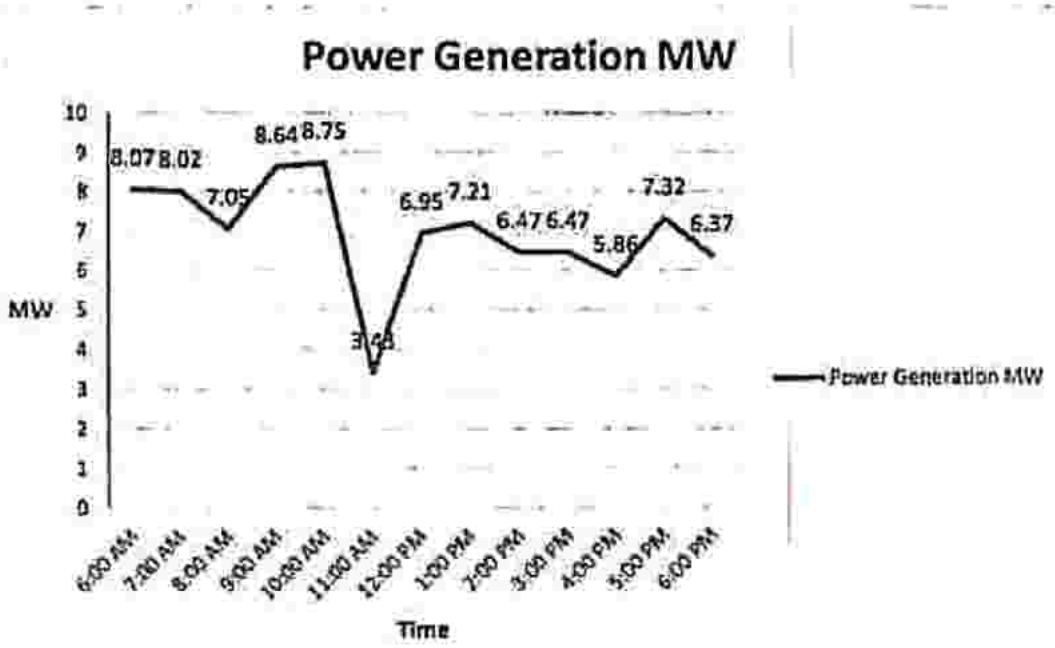


Figure 6: Time vs. power generation plot dated 13th October, 2020.

h. One boiler along with pollution control devices was found operational. The average temperature of furnace was maintained most of the time was 950° C.

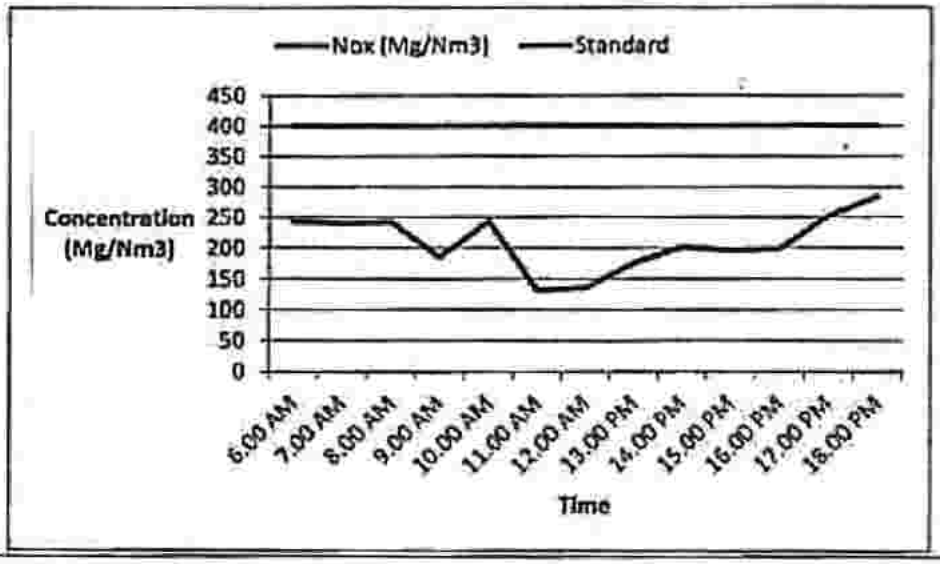
l. Stack emission results are given in **Table 14.** The following are the observations.

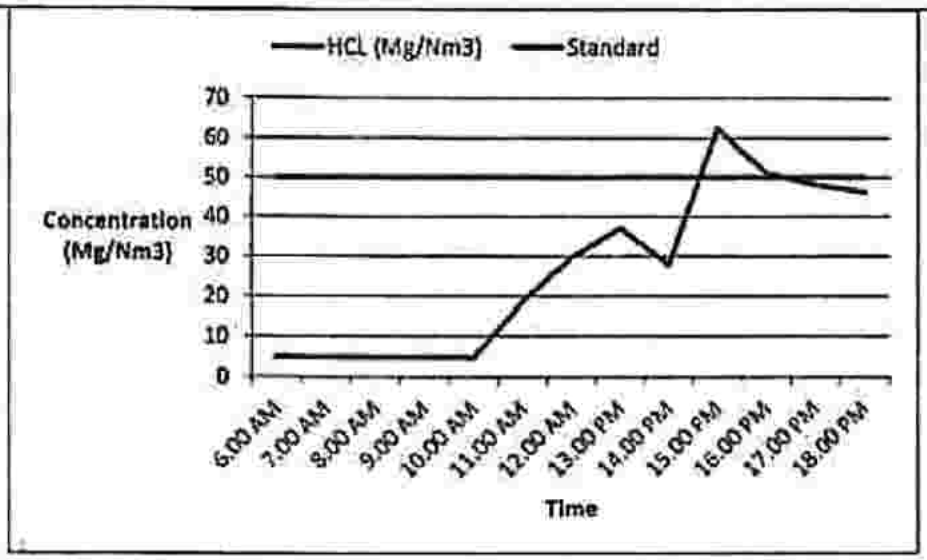
i. **Dioxin and Furans** values **(0.27ngTEq/Nm³)** of stack monitoring exceeded the permissible limit **(0.1 ngTEq/Nm³)** monitored by M/s. SRI, Delhi.

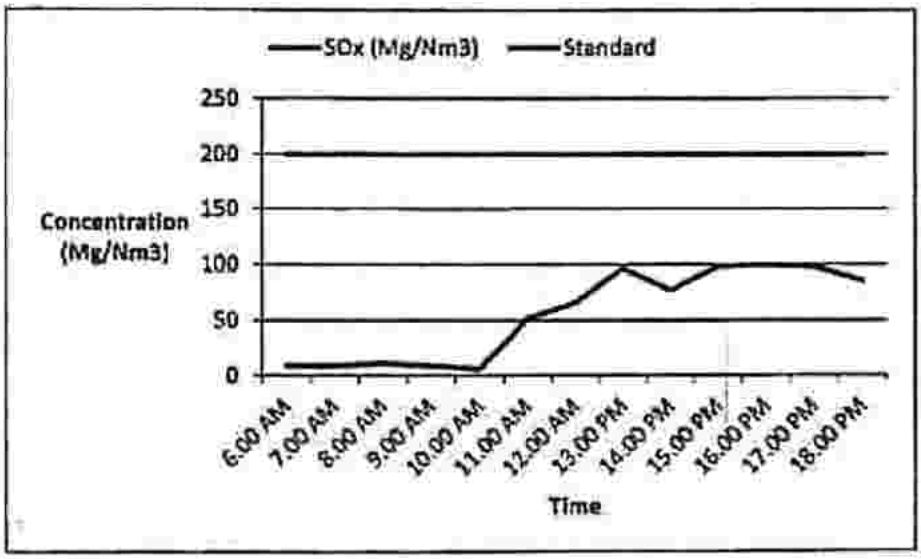
ii. **PM (62.7 & 85.1** mg/Nm³**), NOx (869** mg/Nm³**) and HCl (407** mg/Nm³**) concentrations were exceeding the permissible limits** (30, 350 & 50 mg/Nm³ respectively)

iii. Remaining parameters were well within the limit.

j. Online Continuous Emission Monitoring System (OCEMS) for PM, SO_2, NOx and HCl in the stack emission had been installed and it was found working at the time of inspection except for monitoring PM. Results obtained from OCEMS on 13.10.2020 are plotted in **Figure-7.** Comparison of OCEMS data with joint monitoring results is tabulated in **Table-18.** Comparison of OCEMS data with joint monitoring results reveals that the OCEMS data is not matching with the actual monitoring results. HCl & NOx level as per actual monitoring was more than that reported by OCEMS. Whereas, SOx as per joint monitoring is lower than the OCEMS result.




HCL (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
70
60
50
40
30
20
10
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time


SOx (Mg/Nm3)
Standard
Concentration (Mg/Nm3)
250
200
150
100
50
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

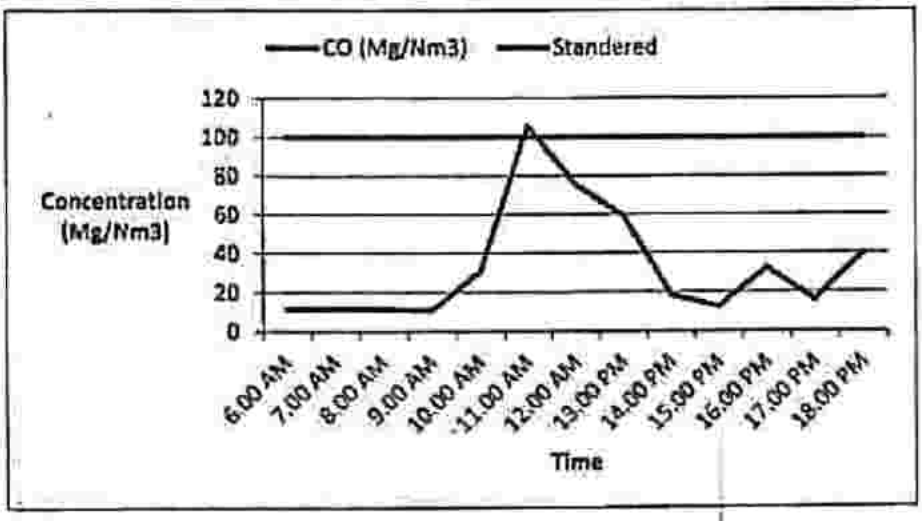

CO (Mg/Nm3)
Standered
Concentration (Mg/Nm3)
120
100
80
60
40
20
0
6.00 AM
7.00 AM
8.00 AM
9.00 AM
10.00 AM
11.00 AM
12.00 AM
13.00 PM
14.00 PM
15.00 PM
16.00 PM
17.00 PM
18.00 PM
Time

Figure 7: Online Continuous Emission Monitoring System (OCEMS) data for NOx HCL, SOx, and CO on 13.10.2020.

Table 18: Comparison of OCEMS & Joint Monitoring data of the stack emission

Sl. No.	Parameters	OCEMS	Joint Inspection results
1.	PM mg/Nm3	Not working	62.7-85.1
2.	HCL mg/Nm3	4.86-51.13	407
3.	NOx mg/Nm3	132.4-251.71	869-104.3
4.	SO2 mg/Nm3	5.79-98.25	BDL
5.	CO	11.35-105.61	Not monitored

j. Ambient Air quality monitoring results are given in **Table-15.** It is observed that PM2.5 & PM_{10} at Ghazipur Police station & Delhi Transco Ltd. **(127 µg/m³ & 215 ug/m³ and 273 ug/m³ & 404 ug/m³ respectively)** exceeded the standard of prescribed limit (PM2.5 : 60 µg/m³ & PM10 100 µg/m³). Concentration levels of the remaining parameters are within the stipulated norms.

k. Continuous Ambient Air Quality Monitoring Station (CAAQMS) was not operational during the inspection.

l. Lime, Powered Activated Carbon (PAC) and Urea are used as dosing agents in Flue gas. A graph has been plotted for Lime, Powered Activated Carbon (PAC) and Urea used on 13.10.2020 during 6.00AM to 6PM as shown in **Figure 8.** The quantity of Lime, activated carbon and urea doused is observed to be in the range of 140-168kg/h, 4-6 kg/h and 20-28.32 Kg/hr respectively.

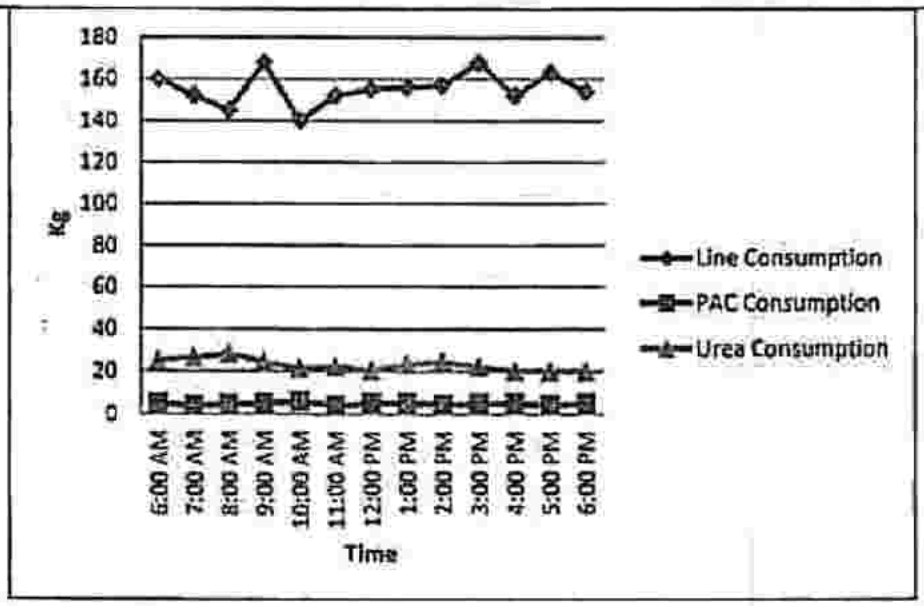


Figure-8: Amount of Lime, Activated Carbon and urea used as dosing on 13.10.2020.

m. Analysis reports of loss of Ignition (LOI) and heavy metals in fly ash and bottom ash are given in **Table-16.** It is observed that monitored levels of all the parameters are within the specified limit.

n. The plant is dumping Bottom Ash, Fly Ash & Inerts at Ghazipur Dumpsite. WtE plant Ghazipur is not utilizing Fly ash for beneficial purposes like bricks manufacturing etc.

o. Leachate Treatment plant has been installed and treated leachate is being used for gardening, road waste etc.

p. During inspection, Treated Leachate Treatment plant was found operational. Treated leachate analysis report is tabulated in **Table-19.** It has been observed that the value of TDS of treated leachate exceeded the standard limit on Land disposal.

Table 19: Analysis report of treated leachate

S. No	Parameter	Land disposal (Standards)	Treated Leachate analysis report
	Suspended solids, mg/l, max	200	47
	Dissolved solids (inorganic) mg/l, max.	2100	2532
	pH value	5.5 to 9.0	-
	Ammonical nitrogen (as N), mg/l, max.	-	3.0
	Total Kjeldahl nitrogen (as N), mg/l, max.	-	-
	Biochemical oxygen demand (3 days at 270 C) max.(mg/l)	100	18.2
	Chemical oxygen demand, mg/l, max.	-	92
	Arsenic (as As), mg/l, max	0.2	BDL
	Mercury (as Hg), mg/l, max	-	-
	Lead (as Pb), mg/l, max	-	BDL
	Cadmium (as Cd), mg/l, max	-	BDL
	Total Chromium (as Cr), mg/l, max.	-	BDL
	Copper (as Cu), mg/l, max.	-	0.03
	Zinc (as Zn), mg/l, max.	-	1.25
	Nickel (as Ni), mg/l, max	-	BDL
	Cyanide (as CN), mg/l, max.	0.2	-
	Chloride (as Cl), mg/l, max.	600	-
	Fluoride (as F), mg/l, max	-	-
	Phenolic compounds (as C6H5OH) mg/l, max.	-	BDL

q. Unit has not fixed radioactive sensors on the way of MSW loaded truck.

r. During inspection all drains within the premises were found chocked & MSW found scattered on roads inside the plant.

s. Plant has not maintained considerable greenery inside the premises.

15. Recommendations

i. The plant has to upgrade its production process and emission control measures to ensure that the emission levels of all parameters including (PM, HCL, NOx, Dioxin & Furans) are within the stipulated limits.
ii. Plant should implement necessary measures to improve air quality (PM2.5 & PM10) in and around the plant.
iii. OCEMS installed in the plant to be calibrated to ensure that OCEMS data matches with the actual monitoring results.
iv. The plant has to ensure that CAAQMS installed in their premises is operational at all times and the display board for the same should be made functional.
v. The plant should upgrade leachate treatment procedure so as to improve the treated leachate quality before spreading over land.
vi. The plant has to provide facility for treatment of wet waste.
vii. The segregation process of MSW of the plant has to be made operational to improve efficiency of the plant.
viii. The plant has to be obtained valid consent to operate from DPCC.
ix. The plant has to ensure that it is operational at full capacity when the joint inspection of the unit is carried out so that the monitoring results are conclusive.
x. Time bound Action Plan to be submitted for utilization of fly ash and inert material.
xi. Green Belt has to be developed around the plant as per Buffer zone Guidelines for waste processing processing facilities issued by CPCB.
xii. Unit has to fix radioactive sensors at suitable places to effectively monitor the entering in the plant.
xiii. House Keeping needs to be improved.

Name & designation of inspecting officer(s)	(Ratnesh Kumar), Sc.'B', CPCB Delhi	(Ramesh Chandra) EE, DPCC Delhi	Atanu Dey, RA-I, CPCB
Signature			

ANNEXURE-I

**BEFORE THE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI**

**M.A. No. 1168 of 2017
In
Original Application No. 22 of 2013 Tnc**

**Sukhdev Vihar Residents Welfare Association & Ors.
Vs.
State of NCT of Delhi & Ors.**

CORAM : HON'BLE MR. JUSTICE SWATANTER KUMAR, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE RAGHUVENDRA S. RATHORE, JUDICIAL MEMBER
HON'BLE MR. BIKRAM SINGH SAJWAN, EXPERT MEMBER

Present: Applicant: Ms. Alpana Podder, Adv. with Mr. Bhupender Kumar, LA, Central Pollution Control Board , Applicant in M.A.

Respondent. : Mr. Tarunvir Singh and Ms. Guneet Khehar, Advs.
Ms. Sakshi Popli, Adv. for Delhi Jal Board
Mr. Krishna Kumar Singh, Adv. for Ministry of Environment, Forest and Climate Change
Ms. Priyanka Swami, Adv. for Nagar Nigam Ghaziabad
Mr. Biraja Mahapatra, Adv. and Mr. Dinesh Jindal, LO for Delhi Pollution Control Committee

	Date and Remarks	Orders of the Tribunal
	Item No. 12 October 09, 2017 mas	**M.A. No. 1168 of 2017** It is contended that keeping in view of the expenses involved, the fact is that the Central Pollution Control Board does not have in-house mechanism in their laboratories to analyse Dioxin and Ferrons. The prayer is that instead of monthly it may be made once in four months. We allow this prayer. The Central Pollution Control Board is permitted to collect and analyse the samples of ambient air quality once in four months, they shall also conduct at lease two surprise inspections and analysis be made in a year. With the above directions M.A. No. 1168 of 2017 stands disposed of. No order as to cost. .....,CP (Swatanter Kumar)

	Item No. 12 October 09, 2017 ***	.....JM (Dr. Jawad Rahim) .....JM (Raghuvendra S. Rathore) .....EM (Bikram Singh Sajwan)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 640/2018
[Earlier O.A. No. 22/2013]

Sukhdev Vihar Resident's Welfare Association
Vs.
State of Delhi & Ors.

CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL,CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present: Respondent: **Mr. Nilava Bandyopadhyay, Adv. for Project Proponent, Okhla Project**

	Date and Remarks	Orders of the Tribunal
	Item No. 6 **September 27, 2018** **R**	1. In pursuance of earlier order of this Tribunal dated 18.04.2018, joint inspection has been conducted by the Central Pollution Control Board and the Delhi Pollution Control Committee. Findings in the report are that the Waste-to-Energy Plants at Okhla, Ghazipur and Bawana are non-compliant with respect to the standards of the particulate matter. Following recommendations have been made: **"Recommendations:** 1. *To ensure better efficiency of the Plant and Power generation the unit should feed segregated wastes.* 2. *Plant should adopt technologies to reduce Moisture Content in RDF.* 3. *Fly ash utilization should be done rather than dumping it on landfill site.* 4. *Unit shall install Fly ash bricks manufacturing unit.* 5. *Flow meters shall be installed at inlet and outlet of Leachete treatment plant.* 6. *Plant should adopt technologies to improve calorific value of RDF.* 7. *Plant shall be designed for 30-35 years."* 2. The Central Pollution Control Board may send a copy of its report to the project proponents of Okhla, Ghazipur and Bawana Waste-to-Energy Plant for compliance and conduct another inspection within one

	Item No. 6 September 27, 2018 R	month in view of the fact that the earlier inspection was in February, 2018 and requirement of carrying out inspection is in every 4 months. We do not find any ground to accept the prayer for relieving Central Pollution Control Board of its requirement in four monthly monitoring. If there is a manpower constraint, it is for the Central Pollution Control Board to make any other appropriate arrangement for discharging its functions. This cannot be a ground to avoid responsibility under the binding directions of this Tribunal. 3. It is made clear that if the project proponents fail to maintain the standards, even after carrying out the deficiencies noticed in the joint inspection Report, Central Pollution Control Board may recommend the amount of environmental damage required to be paid by them. The application is disposed of. .....CP (Adarsh Kumar Goel) .....,JM (S.P. Wangdi) .....,EM (Dr. Nagin Nanda) 27.09.2018

Annexure-292

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

BY SPEED POST

F.No. B-11011/UPC-II/MSW/ (WTE)/2020-21 (5)

April 05, 2021

To,

The Chairman,
Delhi Pollution Control Committee,
4th & 5th Floor, ISBT Building, Kashmere Gate,
New Delhi, Delhi 110006

Sub: Directions under Section 5 of Environmental (Protection) Act, 1986.

WHEREAS, the Central Government has notified the standards for discharge of environmental pollutants from various categories of industries under Environment (Protection) Act, 1986 and the Rules framed there under.

WHEREAS, the Ministry of Environment, Forest & Climate Change has notified Solid Waste Management Rules, 2016 which inter alia prescribe standards for treated Leachate (Schedule II-B of the Rules) and emission standards for Incineration (Schedule II-C of the Rules).

WHEREAS, under Section 14(a) of the Solid Waste Management Rules- one of the responsibilities of Central Pollution Control Board is to coordinate with the SPCBs/ PCCs for implementation of these Rules and adherence to the prescribed standards by Local Authorities.

WHEREAS, under Section 16(b) of the Solid Waste Management Rules, one of the responsibility of the SPCB/PCC is to monitor environmental standards and adherence to conditions as specified under schedule I and Schedule II of waste processing and disposal sites.

WHEREAS, Hon'ble NGT in its order dated 09/10/2017 in OA No. 22 of 2013 T_{HC}, directed Central Pollution Control Board to collect and analyse the samples of the ambient air quality once in four months, they should also conduct at least two surprise inspections and analysis be made in a year" .

WHEREAS, In compliance of above order, periodic monitoring with DPCC of the three Waste to Energy plants in Delhi (located at Bawana, Ghazipur and Okhla) has been conducted during the period 2017 to 2020 and last monitoring report has been filed with Hon'ble NGT on 23.03.2021.

WHEREAS, Hon'ble NGT vide its order dated 11.11.2020 in OA No. 640/2016 disposed of the matter and issued the following Direction. *"Let the CPCB and DPCC issue appropriate directions for compliance of the observations and recommendations by the Waste to Energy plants in question. The committee is also at liberty to recover compensation in terms of the order already passed by this Tribunal for any violation which may be found."*

Contd..2..

AND NOW THEREFORE, In views of above and in exercise of powers vested to Chairman CPCB under Section 5 of Environment (Protection) Act, 1986 following Directions are issued to you.

a) To take necessary action including periodic monitoring of the 3 Waste to Energy plants, to ensure their compliance with stipulated and environmental norms as per Solid Waste Management Rules, 2016.

b) To submit periodic status report including monitoring report of the 3 Waste to Energy plants and details of action taken by DPCC for non-compliance, if any, observed in the Waste to Energy plants.

c) To submit the status report on half yearly basis, first such report to be filed by June 30, 2021.

Receipt of these Directions may be acknowledged within 7 days of issue of the Direction.

(Shiv Das Meena)
Chairman

Copy for information to:

1. **Joint Secretary, HSMD,**
   Ministry of Environment, Forest & Climate Change,
   Indira Paryavaran Bhawan,
   Jor Bagh Road, All Ganj, New Delhi – 3
   : for information please

2. **Shri Vimal Monga, President,**
   RWA, Sukhdev Vihar, New Delhi-110025
   : for information please

3. **Ms Gazala Habib, Associate Professor,**
   Civil Engineering, IIT Delhi - 110016
   : for information please

4. Div. Head, Air lab, CPCB Delhi
   : for information please

5. Div. Head, IT Division, CPCB Delhi
   : with a request to upload the direction on CPCB website

(Prashant Gargava)
Member Secretary

Annexure-V/04

TOWMCL, Okhla WtE Plant (Sep '24 Power Sale)				
Electricity Customers	MU *	~ MW ^	Current Tariff	Levelized Tariff
BRPL [1]	5.53 MU	7.69 MW	₹ 3.07	₹ 2.81
TPDDL [2]	3.81 MU	5.29 MW	₹ 5.74	₹ 5.83
Other [3]	3.21 MU	4.46 MW	₹ 8.65	-
T&D [4]	0.08 MU	0.11 MW	-	-
Overall	12.63 MU	17.55 MW	₹ 5.27	-
*MU - Million Units per Annum ; ^MW - Mega Watts				
[1] BSES Rajdhani Power Ltd (Long Term PPA)				
[2] Tata Power Delhi Dist Ltd (Long Term Open Access)				
[3] Remaining Power Sale in Short Term Open Access				
[4] T&D Losses only in case of Open Access Power Sale				

Bill Date	Customer Name	Type	Invoice No.	Billed Qty (kWh)	Net Qty Billed (kWh)
09.09.2024	ADARSH STAINLESS PRIVATE LIMITED	Bill of Supply	BS2024200094	7,44,240.00	32,10,965
16.09.2024		Bill of Supply	BS2024200096	7,44,240.00	
23.09.2024		Bill of Supply	BS2024200103	7,44,240.00	
30.09.2024		Bill of Supply	BS2024200106	9,56,880.00	
14.10.2024		Debit Memo	DN2024400007	21,364.82	
30.09.2024	BSES Rajdhani Power Ltd.	Bill of Supply	BS2024200109	54,27,989.00	55,33,285
14.10.2024		Debit Memo	DN2024400008	1,05,296.00	
30.09.2024	Tata Power Delhi Distribution Ltd.	Bill of Supply	BS2024200108	38,70,000.00	38,10,657
14.10.2024		Credit Memo	CN2024300013	59,343.38	
				Total (kWh)	1,25,54,906

ORIGINAL FOR RECIPIENT

BILL OF SUPPLY

Timarpur-Okhla Waste Management Co. Ltd.

Old NDMC Compost Plant,Adjacent to Okhla Sewage Treatment Plant
New Delhi , Delhi - 110025,
Tel No:+91 11 26843044 Fax No:+91 11 26843044
CIN:U37100UP2005PTC069574
PAN : AACCT2592F, GSTIN : 07AACCT2592F1ZC, State Code: 07

Name & Address of Customer / Buyer
BSES Rajdhani Power Ltd.
AVP(PMG), "C" Block, II FloorBSES Bhawan, Nehru Place ,
New Delhi-110019
GSTIN :- 07AAGCS3187H2Z3, PAN :- AAGCS3187H
Place of supply : New Delhi
State Code: 07

Invoice No	: BS2024200109
Billing Doc No	: 5040001382
Invoice Date	: 01.10.2024
Payment Term	: 30 days Credit
Freight Basis	: EXW-Ex Works

Name & Address of Consignee:
BSES Rajdhani Power Ltd.
AVP(PMG), "C" Block, II Floor BSES Bhawan, Nehru Place

New Delhi 110019 State Code: 07
GSTIN :- 07AAGCS3187H2Z3, PAN :- AAGCS3187H

Contract No. & Date	: EPA/BSES/20.01.2010 / 20.01.2010
Customer Billing No.	: NA
Billing Period /Month	: 01.09.2024 to 30.09.2024

S.No	Description	HSN/SAC Code	Qty. (UOM)	Rate (INR)	Taxable Amount (INR)	Rate of Tax (%)	IGST	Total Value (INR)
001	Energy	27160000	5427989.000 (KWH)	3.07	16642214.27	0.00	0.00	16642214.00
000								
000								
000								
000								
000								
	Total				16642214.27		0.00	16642214.00

Amount in Words:- RUPEES ONE CRORE SIXTY SIX LAKH FORTY TWO THOUSAND TWO HUNDRED FOURTEEN only.

Remarks	Payment Due Date : 31.10.2024
RTGS Details	
Beneficiary Bank	HDFC BANK LTD.
Beneficiary Bank Acc. No	50200093631312
Bank Address	HDFC BANK LTD. Vasant Vihar Branch, New Delhi - 110057
IFSC Code	HDFC0000011
SWIFT Code	

Terms and conditions:

For Timarpur-Okhla Waste Management Company

TIMARPUR-OKHLA Waste Management Co. Ltd. New Delhi

Authorized Signatory

ENERGY PURCHASE AGREEMENT

For

Procurement of Power on Long term basis from Power station to be setup at Okhla, New Delhi

BETWEEN

(TIMARPUR-OKHLA WASTE MANAGEMENT COMPANY PRIVATE LIMITED)
("Generating Plant")

AND

(BSES Rajdhani Power Limited)
("Procurer")

(As per guidelines for determination of tariff by bidding process for procurement of power by distribution licensee)

Long Term Power Procurement (For 25 Years)

दिल्ली DELHI

F 816612

Timarpur-Okhla Waste Management Co. (P) Ltd. JINDAL Okhla

Ajay Kumar
Additional Vice President
BSES Rajdhani Power Ltd.

THIS AGREEMENT is made on the 20th day of January 2010 (herein after called the Effective Date)

By and between

TIMARPUR-OKHLA WASTE MANAGEMENT COMPANY PRIVATE LIMITED, a company registered under the Companies Act, 1956 and having its registered office at 28, Shivaji Marg, New Delhi - 110 015, India (hereinafter referred to as the "Generating Company", which expression shall, unless it be repugnant to the context or meaning thereof, shall be deemed to mean and include its successors and permitted assignees) of the First Part;

And

BSES RAJDHANI POWER LIMITED (BRPL), a company registered under the Companies Act, 1956 and having its registered office at *[BSES Bhawan, Nehru Place, New Delhi - 110019]* hereinafter referred to as "Procurer", which expression shall, unless it be repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assignees as party of the Second Part.

AND WHEREAS, the Generating Company is engaged in the business of generating power from municipal solid waste and development of integrated waste processing facility and other incidental businesses situated at Timarpur and Okhla in the state of Delhi, more particularly described in Annexure I attached hereto and made a part hereof.

AND WHEREAS, Procurer is a distribution licensee operating in the state of Delhi, and has license to supply power in the specified municipal area of Delhi including the project site at Okhla.

ORIGINAL FOR RECIPIENT

BILL OF SUPPLY

Timarpur-Okhla Waste Management Co. Ltd.

Old NDMC Compost Plant,Adjecent to Okhla Sewage Treatment Plant
New Delhi , Delhi - 110025,
Tel No:+91 11 26843044 Fax No:+91 11 26843044
CIN:U37100UP2005PTC069574
PAN : AACCT2592F, GSTIN : 07AACCT2592F1ZC, State Code: 07

Name & Address of Customer / Buyer
Tata Power Delhi Distribution Ltd
NDPL House, 2nd Floor, Hudson Lines/Kingsway Camp ,
Delhi-110009
GSTIN :- 07AABCN6808R1ZV, PAN :- AABCN6808R
Place of supply : Delhi
State Code: 07

Invoice No : BS2024200108

Billing Doc No : 5040001381
Invoice Date : 01.10.2024
Payment Term : 60 days Credit
Freight Basis : EXW-at site

Name & Address of Consignee:
Tata Power Delhi Distribution Ltd.
NDPL House, 2nd Floor, Hudson Lines Kingsway Camp

Delhi 110009 State Code: 07
GSTIN :- 07AABCN6808R1ZV, PAN :- AABCN6808R

Contract No. & Date : TPDDL-99A/18.11.2015 / 19.11.2015
Customer Billing No. : NA
Billing Period /Month : 01.09.2024 to 30.09.2024

S.No	Description	HSN/SAC Code	Qty. (UOM)	Rate (INR)	Taxable Amount (INR)	Rate of Tax (%)	IGST	Total Value (INR)
001	Energy	27160000	3870000.000 (KWH)	5.74	22221540.00	0.00	0.00	22221540.00
000								
000								
000								
000								
000								
	Total				22221540.00		0.00	22221540.00

Amount in Words:- RUPEES TWO CRORE TWENTY TWO LAKH TWENTY ONE THOUSAND FIVE HUNDRED FORTY only.

Remarks	Payment Due Date : 30.11.2024
RTGS Details	
Beneficiary Bank	HDFC BANK LTD.
Beneficiary Bank Acc. No	50200093631312
Bank Address	HDFC BANK LTD. Vashant Vihar Branch, New Delhi - 110057
IFSC Code	HDFC0000011
SWIFT Code	

Terms and conditions:

For Timarpur-Okhla Waste Management Company

Authorized Signatory

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Government of National Capital Territory of Delhi

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Certificate No.	:	IN-DL78424186191175N
Certificate Issued Date	:	03-Nov-2015 10:54 AM
Account Reference	:	IMPACC (SH)/ dlshimp17/ TIS HAZARI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDLSHIMP17548753268668434N
Purchased by	:	TATA POWER DELHI DISTRIBUTION LTD
Description of Document	:	Article 5 General Agreement
Property Description	:	NA
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	TATA POWER DELHI DISTRIBUTION LTD
Second Party	:	NA
Stamp Duty Paid By	:	TATA POWER DELHI DISTRIBUTION LTD
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

Please write or type below this line

This stamp paper is used for execution of a PPA at Delhi.

SANJAY KUMAR BANGA
Head (PE&C, PM & BD)
TATA Power Delhi Distribution Limited

Akalesh Gupta

Timarpur-Okhla Waste Management Co. Pvt. Ltd.

415

Statutory Alert:
1. The authenticity of this Stamp Certificate should be verified at "www.shcilestamp.com". Any discrepancy in the details on this Certificate and as available on the website renders it invalid.

Power Purchase Agreement

This Power Purchase Agreement hereinafter referred to as the **"Agreement"** is made on the 19th day of Nov 2015 at New Delhi by and between:

Timarpur Okhla Waste Management Company Pvt. Ltd. a company incorporated under the provision of the Company Act, 1956 having its Registered office at A-1, UPSIDC Industrial Area, Nandgaon Road, Kosi Kalan, Dist. Mathura, Uttar Pradesh - 281403 , (hereinafter referred to as **"Seller"** which expression shall include its successor and/or permitted assigns) of the first part;

AND

Tata Power Delhi Distribution Ltd., a company incorporated under the provision of the Company Act, 1956 having its Registered office at "NDPL House", Grid Sub-Station Building, Hudson Lines, Kingsway Camp, Delhi-110009 (hereinafter referred to as **"TPDDL"** or **"Procurer"** which expression shall include its successor and/or permitted assigns) of the second part;

Each of the parties of the first and second part above shall be individually referred to as "a Party" and collectively referred to as "the Parties".

WHEREAS:

A. The Procurer had initiated a competitive bidding process through issue of RFP for selecting a Successful Bidder for long term procurement of power from renewable energy sources (including Solar, Wind, Biomass, SHP, Waste to Energy etc.) for meeting the Procurer's Renewable Power Obligation as per the Delhi Electricity Regulatory Commission (Renewable Purchase Obligation and Renewable Energy Certificate Framework Implementation) Regulations, 2012.

B. Pursuant to the competitive bidding process, M/S TIMARPUR OKHLA WASTE MANAGEMENT COMPANY PVT. LTD. has been identified by the Procurer as the Selected Bidder for sale and supply of the Contracted Energy (as defined hereunder) from its 16 MW Waste to Energy power generating station at Delhi ("**Project**") in accordance with the terms of this Agreement.

C. Void

D. M/S TIMARPUR OKHLA WASTE MANAGEMENT COMPANY PVT. LTD.has fulfilled the conditions set out in paragraph 2.2.8 and 2.2.9 of the RFP and has provided to the Procurer the Contract Performance Guarantee as per format specified in Annexure 5.5 A & B of the RFP.

E. The Parties hereby agree to execute this Agreement setting out the terms and conditions for the sale and purchase of power up to the Contracted Energy from the Project in each Contract Year.

F. All the other RFP Documents (if any, designated by the Procurer pursuant to the RFP) will be executed by the Procurer and the Seller simultaneously with the signing of this Agreement.

NOW THEREFORE, in consideration of the premises and mutual agreements, covenants and conditions set forth herein, it is hereby agreed by and between the Parties as follows:

ORIGINAL FOR RECIPIENT

BILL OF SUPPLY

Timarpur-Okhla Waste Management Co. Ltd.

Old NDMC Compost Plant,Adjacent to Okhla Sewage Treatment Plant
New Delhi , Delhi - 110025,
Tel No:+91 11 26843044 Fax No:+91 11 26843044
CIN:U37100UP2005PTC069574
PAN : AACCT2592F, GSTIN : 07AACCT2592F1ZC, State Code: 07

Name & Address of Customer / Buyer
ADARSH STAINLESS PRIVATE LIMITED
R.NO.70, 5TH FLOORMOTI MANSION BUILDING NO. 2-12 5TH
KHETWADI BACK ROAD ,
MUMBAI-400004
GSTIN :- 27AAGCA9112L1ZI, PAN :- AAGCA9112L
Place of supply : MUMBAI
State Code: 27

Invoice No	: BS2024200123
Billing Doc No	: 5040001403
Invoice Date	: 22.10.2024
Payment Term	: 3 days Credit
Freight Basis	: EXW-At Site

Name & Address of Consignee:
ADARSH STAINLESS PRIVATE LIMITED
R.NO.70, 5TH FLOOR MOTI MANSION BUILDING NO. 2-12
5TH KHETWADI BACK ROAD
MUMBAI 400004 State Code: 27
GSTIN :- 27AAGCA9112L1ZI, PAN :- AAGCA9112L

Contract No. & Date	: ASPL/18.12.2023 / 18.12.2023
Customer Billing No.	: NA
Billing Period /Month	: 15.10.2024 to 21.10.2024

S.No	Description	HSN/SAC Code	Qty. (UOM)	Rate (INR)	Taxable Amount (INR)	Rate of Tax (%)	IGST	Total Value (INR)
001	Energy	27160000	744240.000 (KWH)	8.60	6437676.00	0.00	0.00	6437676.00
000								
000								
000								
000								
000								
	Total				6437676.00		0.00	6437676.00

Amount in Words:- RUPEES SIXTY FOUR LAKH THIRTY SEVEN THOUSAND SIX HUNDRED SEVENTY SIX only.

Remarks	Payment Due Date : 25.10.2024
RTGS Details	
Beneficiary Bank	HDFC BANK LTD.
Beneficiary Bank Acc. No.	50200093631812
Bank Address	HDFC BANK LTD. Vashant Vihar Branch, New Delhi - 110057
IFSC Code	HDFC0000011
SWIFT Code	

Terms and conditions:

For Timarpur-Okhla Waste Management Company

Authorized Signatory

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Government of National Capital Territory of Delhi

₹100

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Certificate No.	:	IN-DL80068374717116V
Certificate Issued Date	:	23-Mar-2023 05:21 PM
Account Reference	:	IMPACC (IV)/ dl777009/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL777009331792713200948V
Purchased by	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Description of Document	:	Article 4 Affidavit
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Second Party	:	Not Applicable
Stamp Duty Paid By	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

AGREEMENT FOR SALE OF POWER

THIS AGREEMENT FOR SALE OF POWER is made on the **18th** day of **December, 2023** **("Agreement")**

BY AND BETWEEN

1. **M/s Timarpur-Okhla Waste Management Company Ltd. (TOWMCL)**, a company incorporated under the companies act of 2013 having its registered office at **28, Shivaji Marg, Delhi-110015** hereinafter

Statutory Alert:
1. The authenticity of this Stamp certificate should be verified at www.shcilestamp.com or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

referred to as "Seller", Which expression shall unless repugnant to the context or meaning thereof shall be deemed to include its successors, nominees and permitted assigns as the party of the **FIRST PART.**

AND

2. **M/s Adarsh Stainless Pvt. Ltd. (ASPL),** a company incorporated under the Companies Act 1956, having its registered office at 21-23, Mangal Arcade, 2nd Floor, Telco Road, Chinchwad, Pune, Maharashtra hereinafter called" Trader", which expression shall unless repugnant to the context or meaning hereof shall mean and include its successors, nominees and permitted assigns), as the party of the **SECOND PART.**

Trader and Seller are hereinafter collectively referred to as the "Parties" and individually as a "Party".

Whereas:

1. The Seller requires **Trader** to provide services namely **Supply of Renewable Non-Solar Power** till 31st March 2024 from date of Signing of Agreement and the Seller is engaged in the business of providing such services and has agreed to perform the Services for the Trader for the potential buyers on the terms and conditions set out in this Contract. Accordingly, it is essential to the Trader that the Services to be provided under this Contract are rendered in a timely manner as envisaged in the Contract. In entering this Contract, Seller acknowledges that time is the essence and agrees to the provisions in the Contract addressing that.
2. Trader is an inter-state trading licensee, having been granted category IV, Electricity Trading License bearing number 104/Trading License/2023/CERC by the Central Regulatory Electricity Commission under Section 12 of the Electricity Act, 2003 (The Act) and regulated in terms of the License and Regulations/rules, framed/notified by the authorities/bodies as provided under the Act.
3. The trader has tied up with different Power Consumers, Utilities, generator and is well positioned to sell the Power.

Now, therefore, in consideration of the respective covenants and mutual promises set forth herein the parties agree hereto as under: -

1. Definitions & Interpretations: -

1.1 Definitions:

Annexure VI

Analysis results of groundwater collected on 22.10.2024 (From nearby NDMC building)

S.N.	Parameters	IS 10500:2012, Desirable limit (mg/l except for pH)	Permissible Limits (mg/L)	Measured Values (mg/L)	Reference 44 locations monitored by DPCC under NWMP) , 2023)
1	Arsenic	0.01	0.05	BDL	-
2	Cadmium	0.01	0.003	BDL	-
3	Chromium(as Cr6+)	0.05	0.05	BDL	-
4	Copper	0.05	1.5	BDL	-
6	Lead	0.01	0.01	BDL	-
7	Mercury	0.001	0.001	BDL	-
8	Nickel		0.02	BDL	-
9	Nitrate as NO3	45	45	6.4	0.30-1.03
10	pH	6.5-8.5	6.5-8.5	7	6.5-7.8
11	Iron	0.3	0.3	1.348	-
12	Total hardness (as CaCO3)	300	600	600	110-1410
13	Chlorides	250	1000	406	-
14	Dissolved Solids	500	2000	1468	214-2889
15	Phenolic compounds (as C6H5OH)	0.001	0.002	BDL	-
16	Zinc	5	15	0.21	-
17	Sulphate (as SO4)	200	400	362	-

BILL OF SUPPLY

ORIGINAL FOR RECIPIENT

Timarpur-Okhla Waste Management Co. Ltd.

Old NDMC Compost Plant,Adjacent to Okhla Sewage Treatment Plant
New Delhi , Delhi - 110025
Tel No:+91 11 26843044 Fax No +91 11 26843044
CIN:U37100UP2005PTC059574
PAN : AACCT2592F, GSTIN : 07AACCT2592F1ZC, State Code: 07

Name & Address of Customer / Buyer

New Delhi Municipal Council
DGH-II, Horticulture Department Palika Kendra Parliament Street, Delhi
New Delhi-110001
GSTIN :- 07AAALN2075Q1ZK, PAN :- AAALN2075Q
Place of supply - New Delhi
State Code: 07

Invoice No	: BS2024200116
Billing Doc No	: 5040001335
Invoice Date	: 14.10.2024
Payment Term	: Pay immediately w/o deduction
Freight Basis	: EXW-at site

Name & Address of Consignee:

New Delhi Municipal Council
DGH-II, Horticulture Department Palika Kendra Parliament Street, Delhi
New Delhi 110001 State Code: 07
GSTIN :- 07AAALN2075Q1ZK, PAN :- AAALN2075Q

Contract No. & Date	: compost Order / 14.10.2024
Customer Billing No	: NA
Billing Period (Month	: NA

S.No	Description	HSN/SAC Code	Qty. (UOM)	Rate (INR)	Taxable Amount (INR)	Rate of Tax (%)	IGST	Total Value (INR)
001	Compost	31010010	4.57/ (MT)	1500.00	6855.00	0.00	0.00	6855.00
002								
003								
004								
005								
006								
	Total				6855.00		0.00	6855.00

Amount in Words:- RUPEES SIX THOUSAND EIGHT HUNDRED FIFTY FIVE only.

Remarks	Vehicle No. DL1EA 0154
RTGS Details	
Beneficiary Bank	HDFC BANK LTD.
Beneficiary Bank Acc. No.	50200093631312
Bank Address	HDFC BANK LTD. Vasnant Vihar Branch, New Delhi - 110057
RTGS Code	HDFC0000011
SWIFT Code	

Terms and conditions:

For Timarpur-Okhla Waste Management Company

Authorized Signatory

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	:	IN-DL46182449174906V
Certificate Issued Date	:	12-Jan-2023 11:16 AM
Account Reference	:	IMPACC (IV)/ dl831103/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL83110366075280736051V
Purchased by	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Description of Document	:	Article 5 General Agreement
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Second Party	:	NDMC
Stamp Duty Paid By	:	TIMARPUR OKHLA WASTE MANAGEMENT CO LTD
Stamp Duty Amount(Rs.)	:	100 (One Hundred only)

DR. RAMESH KUMAR
12/01/2023 MOH, N.D.M.C.
MOH PALIKA KENDRA
NEW DELHI

Timarpur Okhla Waste Management Co. Ltd. Authorised Signatory

S. CHELLAIAH
Director (Horl.)
New Delhi Municipal Council
New Delhi

AGREEMENT FOR PROCUREMENT OF CITY COMPOST FROM M/s TOWMCL

RENEWAL OF AGREEMENT IN RESPECT OF BUYBACK ARRANGEMENT OF CITY COMPOST FOR NDMC, NEW DELHI.

An agreement made on 12th Jan 23 between Director (Hort.), MOH NDMC for and on behalf of the New Delhi Municipal Council (NDMC) hereinafter called the NDMC and M/s Timarpur-Okhla Waste Management Company Limited. (TOWMCL), hereinafter called the Agency. Whereas the Agency has agreed to "PROVIDE 400 MT of CITY COMPOST FOR NDMC" in lieu of taking Green Waste from NDMC with a total cost of Rs. 6,00,000/- under head of account **"M/o Parks and Garden 2022-23"**, as per terms & conditions of the Work Order. The Agency has agreed to provide 18-20 MT per month of city compost for two years @ Rs. 1500/- Per MT as per requirement of NDMC. The Agency has agreed for deduction of 10% performance security from the running bills of the work. The Agency will provide 400 MT of CITY COMPOST @ Rs.1500/- Per MT in 50 Kg HDPE laminated bags or in bulk/ loose for use of Horticulture purpose to NDMC from time to time, as per requirement, during the period of two year. The rates have been considered on the basis of Clause 2.5 (b) of the existing concession agreement held between NDMC and TOWMCL dated: 24th January 2008. The Agency will execute the work as per specifications, terms & conditions agreed as per Work Order and as per directions of DDH/ADH/SO (Hort.) NDMC and should comply with all terms and conditions of the agreement till its validity.

It has been decided by Chairman NDMC to renew the buyback of city compost from TOWMCL on the same rates i.e. Rs. 1500/- Per MT offered by them during inspection of WTE, (TOWMCL) by NDMC team, vide report no. R-1898/CMO(Proj.) dated: 05.12.2019 and that the segregated Horticulture waste from NDMC area shall be disposed off at TOWMCL Compost Plant, Okhla which is about 10 MT/day and in lieu of that Horticulture Department shall buy back 18-20 MT/ per month City Compost purely generated through horticulture waste from TOWMCL Plant Okhla.

RENEWAL OF AGREEMENT IN RESPECT OF BUYBACK ARRANGEMENT OF CITY COMPOST FOR NDMC, NEW DELHI.

	ITEM OF WORK/ SPECIFICATION	QTY.	RATE	AMOUNT
NAME OF WORK:-M/o Parks and Garden 2022-23. **Sub-Head:-** PROCUREMENT OF CITY COMPOST FOR HORTICULTURE DEPARTMENT, NDMC, and NEW DELHI.	Procurement of good quality City Compost having moisture content between 25%Max., EC <4.0 dsm-1, C:N ratio <20, pH between 6.5 to 7.5 to NDMC in 50 Kg HDPE laminated bags or in bulk/ loose for use of Horticulture purpose. The rate is inclusive of all taxes and duties. The City compost will be procured by NDMC from your Plant in Okhla, Delhi and Empty bags will be returned to you, if taken in bags.	400 MT	Rs. 1500/- Per MT	6,00,000/-

The Agency has also agreed to the following terms and conditions:-

1. The Agency shall be responsible to start for providing the item i.e. well decomposed good quality City Compost having moisture content between 25%Max., EC <4.0 dsm-1, C:N ratio <20, pH between 6.5 to 7.5 in 50 Kg HDPE laminated bags or in bulk/ loose for use of Horticulture purpose, as per requirement of the NDMC within 15 days after placement of order, as per specifications, terms and conditions and as per directions of concerned DDH/ADH/SO(Hort.).
2. It has been agreed that the transportation will be provided by the NDMC to lift the compost from the plant on monthly basis i.e. approx. 18-20 MT. The agency has to inform NDMC in advance through sms/email (7290062455/dd-hort-ll@ndmc.gov.in) that the desired quantity of compost is ready to lift.

Timarpur Okhla Waste Management Co. Ltd. * Authorised Signatory

DR. RAMESH KUMAR
MOH, N.D.M.C.
PALIKA KENDRA
NEW DELHI

S. CHELLAIAH
Director (Hort.)
New Delhi Municipal Council
... Delhi

3. It has been agreed that the loading of material will be the responsibility of the agency and unloading will be the part of NDMC.
4. It has been agreed that the NDMC will return the empty bags (if material will be received in bags) to the Agency after its use, maximum in 15 days after receiving. Decision of Director (Hort.)-N/S shall be final in case any supply or part thereof considered inferior or not in accordance with the specification, it shall be rejected and the Agency shall have to replace the rejected items at his own risk and cost within a week of the intimation about rejection or non acceptance of the goods.
5. The quantity of material will be accessed in quarterly basis for payment. In the event of delay in providing the material anyone of the reason, that should be compensated on the cumulative next monthly quantity. In case it fails, the penalty equivalent to 1% per day for undelivered cumulative quantity of particular month will be imposed subject to maximum of 10% of the total value of monthly quantity.
6. It has been agreed that the payment of bill(s) will be made to the Agency minimum on Quarterly basis and as per request of Agency. The payments will be released by the NDMC (subject to deduction of statutory TDS, taxes, levies etc. if any) as per the prevalent laws and rules of Government of India and Government of NCT of Delhi in this regard.
7. It has been further agreed that 10% Performance Security will be deducted from the running bills and the same will be released to the Agency on successfully completion of the contracted work, if the Agency fails to supply the ordered/agreed item the 10% Performance security deducted from the running bills is liable to be forfeited by NDMC and the Agency will have no objection to it.
8. The time allowed and specification for providing the material shall be strictly followed by the Agency, if fails continuously for three months, the agreement will be terminated without any notice.
9. In case of disputes/differences arising out of the agreement, the same shall be settled through discussion/conciliations between the parties within 60 days of receipt of written request regarding said disputes/ differences etc. from either party. In the event of non resolution of said dispute/differences, the same shall be referred to a Sole Arbitrator appointed by the Chairman, NDMC with the consent of both the parties, as per the Arbitration and conditions Act 1996 (amended up to date). The sole Arbitrator shall hold the Arbitrator at Delhi/ New Delhi only and decided the referred disputes/differences as per the provisions of the Arbitration and Condition Act 1996. (As applicable on date)

The Chairman, NDMC has accepted the said rates and authorized to execute the renewal of agreement thereof, Now this agreement is executed on 12.1.23 Witness the terms & conditions, which have been agreed to by the said parties.

M/s Thriveni Urkha Waste Management Company Limited (TUWMCL)

MOH 12/1/2023

DR. RAMESH KUMAR
MOH, N.D.M.C.
PALIKA KENDRA
NEW DELHI

Director (Hort.)-N

S. SREEKUMAR
Director (Hort.)
New Delhi Municipal Council
New Delhi

Witness
1. VINEET KUMAR SHARMA 12.01.2023
2. Ankur Kumar (Ankur Kumar) 12.01.23

ATTESTED

Notary Public, Delhi

12 JAN 2023

AGSS ANALYTICAL AND RESEARCH LAB (P) LTD.

(An ISO 9001 : 2015, 14001 : 2015, 45001 : 2018 Certified Company)

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CIN : U73200DL2016PTC300483

Format No.: AGSS/QS/F-024

TEST REPORT

Issued to :	
Timarpur Okhla Waste Management Company Ltd. Old NDMC Compost Plant, Mathura Road Okhla, New Delhi 110025	**Report No.** : AGSS/NA/24010800036 **Sample Issue Date** : 08/01/2024 **Report Issue Date** : 15/01/2024

Name of The Product	: City Compost	Sample Received Date	: 08/01/2024
Product Description	: NA	Analysis Starting Date	: 08/01/2024
Batch No./Lot No.	: NA	Analysis Completion Date	: 15/01/2024
Date of Manufacturing	: Not specified	Date of Sampling	: -
Date of Expiry	: Not specified	Quantity Received	: 2kg
Packing Condition	: Poly Pack	Environment Condition	: NA
Location	: NA	Sampling Method	: NA
Sample Received / Collected By	: Ashok Kumar Lab Repr.	Sampling By	: NA
Testing Required	: Chemical & Microbiological Test		
Others specification	: NA		

TEST RESULT

S.No.	Test Parameters	Units	Results	Requirement	Method Of Testing
Chemical Parameters					
1	Moisture	-	20.0	15-25	As Per FCO 1985
2	Colour	-	Black	Dark Brown Black	As Per FCO 1985
3	Odour	-	None	Absences of foul odour	As Per FCO 1985
4	Particle Size	-	Passes the test	Min 90% <4.0mm IS Sieve	As Per FCO 1985
5	Bulk Density	g/cm³	0.69	<1.0	As Per FCO 1985
6	Total Organic Carbon	%	21.0	12.0 Min	As Per FCO 1985
7	Total Nitrogen	%	7.0	0.8 Min	As Per FCO 1985
8	Total Phosphate	mg/kg	3.9	0.4 Min	As Per FCO 1985
9	Total Potassium	-	0.88	0.4 Min	As Per FCO 1985
10	Carbon Nitrogen Ratio (C:N)	-	3.0	<20.0	As Per FCO 1985
11	pH Value	-	7.62	6.5-7.5	As Per FCO 1985
12	Conductivity	µg/cm	2.6	4.0 Max	As Per FCO 1985
Heavy Metals					
13	Arsenic	mg/kg	BLQ(0.05)	10.0 Max	AGSS/CHEM/SOP-ICPMS-02
14	Cadmium	mg/kg	BLQ(0.05)	5.0 Max	AGSS/CHEM/SOP-ICPMS-02
15	Chromium	mg/kg	BLQ(0.05)	50.0 Max	AGSS/CHEM/SOP-ICPMS-02
16	Copper	mg/kg	12.20	300.0 Max	AGSS/CHEM/SOP-ICPMS-02
17	Mercury	mg/kg	BLQ(0.05)	0.15 Max	AGSS/CHEM/SOP-ICPMS-02

A/Z4010800036-1

Chandra Dev Singh
In Charge(Water & Environment)
Checked by

Sonal Gautam
Microbiologist
Authorized Signatory

Dr Shital Singh
Chief Technical
Authorized Signatory

426

ISO ISO ISO

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CIN : U732000L2016PTC300483

Format No.: AGSS/QS/F-024

Issued to :	
Timarpur Okhla Waste Management Company Ltd. Old NDMC Compost Plant, Mathura Road Okhla, New Delhi 110025	Report No. : AGSS/NA/24010800008 Sample Issue Date : 08/01/2024 Report Issue Date : 15/01/2024

S.No.	Test Parameters	Units	Results	Requirement	Method Of Testing
18	Nickel	mg/kg	1.10	50.0 Max	AGSS/CHEM/SOP-ICPMS-02
19	Lead	mg/kg	BLQ(0.05)	100.0 Max	AGSS/CHEM/SOP-ICPMS-02
20	Zinc	mg/kg	195.20	1000.0 Max	AGSS/CHEM/SOP-ICPMS-02
Microbiological Parameters (Pathogen)					
21	Pseudomonas aeruginosa	/g	Absent	-	AGSS/MICRO/SOP/024
22	E coli	/g	Absent	-	IS:5887(P-1):1976
23	Salmonella	/25g	Absent	-	IS:5887(P-3)Sec-1:2020
24	Shigella	/25g	Absent	-	IS:5887(P-7):1999

Remarks : Any addition to Deviation or exclusions from the method: No , Specific environment condition during sampling: No

I hereby attest to the authenticity/decision (AGSS/QM-QSP/06) of the test report that the data is correct and accurate to the best of my knowledge and that the testing was performed by the procedure described in the SOP/Standard.

I hereby attest that this test was conducted within compliance.

Note: 1) BLQ=Below Limit of Quantification. 2) Figure in bracket indicate limit of quantification.

End of Report

A/24010800008-2

Chandra Dev Singh
In Charge(Water & Environment)
Checked by

Sooraj Gautam
Microbiologist
Authorized Signatory

Dr. Shalini Singh
Director Technical
Authorized Signatory

Annexure-VIII

Compliance status of Environmental clearance granted by MoEF&CC

The MoEF&CC has granted EC to the WTE Plant at Okhla dated 15.01.2020 for expansion of the plant from 16 MW to 23 MW capacity. The terms and conditions mentioned in the EC is tabulated below:

Table A: EC dated 15.01.2020

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 15.01.2020	Compliance Status as informed by the project proponent/Observations during inspection by CPCB	Remarks
i	Solid Waste Processing Capacity (TPD)	1950	Waste received at the plant ranged from 1674.09 to 2048 TPD	Complied
ii	Power Generation (MWh)	23	Power generation ranged from 20.60 to 21.90 MW	Less than 23 MW
iii	Land Area (cum)	24444	As informed 24444 is the area	Complied
iv	Source of Water (KLD)	875 from Okhla STP (treated sewage)	Treated sewage from Okhla STP is obtained to use	Complied
v	Effluent generated from MSW during storage for 5-7 days (KLD)	Leachate treatment plant of 110 capacity to treat the leachate	Leachate treatment plant was found operational during the visit. The designed capacity of leachate treatment plant is 332 KLD. Up to 100 KLD, leachate routed to an advanced technology comprising of multi effect evaporators (MEE). Above 100 KLD leachate is treated into RO system	Complied
vi	Power Requirement	Met by self-generated electricity & for emergency requirement unit has one DG set of 320 KVA	As reported, requirement is met by self-generated electricity & for emergency requirement unit has one DG set of 320 KVA	Complied
vii	Logbook Maintenance	Logbooks of MSW received, treated electricity generation, emission control system shall be maintained	Logbooks maintained	Complied
viii	No. of RDF Fired Boilers (450 TPD)	Three boilers of 18.75 TPH capacity each	Three boilers of 18.75 TPH capacity each (450 TPD)	Complied
ix	APCD Requirement & Air Quality Measures	(i) 60 m tall stacks for two units and another 60 m tall stack for single unit were connected for flue gas dispersion at high elevation to minimise the GLC within limits.	Stack height 60 meter. Two stacks found. Only one operational	Complied
		(ii) High efficiency bag house filters with	As informed, High-efficiency bag house filters installed and functional	

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 15.01.2020	Compliance Status as informed by the project proponent/Observations during inspection by CPCB	Remarks
		filtration efficiency of 99.9% Installed to reduce PM emissions to below 30 mg/Nm3,		
		(iii) Dust suppression at ash handling plant,	Dust suppression system Installed	
		(iv) Greenbelt development and afforestation in the plant and ash disposal areas,	Greenbelt inside & outside plant premises developed	
		(v) Quenching the bottom ash with water,	Quenching bottom ash with water	
		(vi) Use of hydrated lime to control SO_2 & HCl emissions,	Use of hydrated lime to control SO_2 & HCl emissions	
		(vii) Use of activated carbon for reducing dioxins and furans as well as heavy metals,	Activated carbon usage for reducing dioxins, furans, and heavy metals	
		(viii) Maintaining the low excess air for reducing NOx emissions	As informed , for reduction of Nox low excess air is maintained	
x	Utilization of Fly Ash/Bottom Ash	Brick manufacturing unit for utilization of fly ash	Brick manufacturing unit is installed but utilization is < 1% only using Bottom ash. Fly ash is disposed at Sanitary Landfill at Okhla. The concentration of Cadmium was found at 7.32 mg/L in the fly ash, exceeding the prescribed standard limit of 1 mg/L.	**Partially complied**
xi	OCEMS	Online emission monitoring equipment for all parameters provided in the Guidelines for Continuous Emission Monitoring Systems, CPCB' shall be installed and connected to CPCB and DPCC servers. OCEMS shall also be setup for HF, CO, TOC, CO_2. All parameters including temperature	Online Continuous Emission Monitoring System for PM, NOx, SO_2, and HCl connected with CPCB server and values displayed at the gate of the facility. **However, sensors for other parameters such as HF, CO, TOC & CO_2 are not installed?** **Temperature sensor is connected to CPCB server.** **Temperature in the incinerator maintained between** 950-1100°C	**Partially Complied**

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 15.01.2020	Compliance Status as informed by the project proponent/Observations during inspection by CPCB	Remarks
		in the incinerator shall be connected to server of CPCB and DPCC. Temperature to be maintained between 950-1100°C		
xii	Odour	The entry gates of waste storage pit need to be made functional so that gates should be closed when there is no truck unloading the waste which will avoid escape of odour.	The entry gate of waste storage pit was found functional during the inspection. Odour was not felt during the inspection	Complied
xiii	Compost	Storage of compost material after segregation (below 20 mm) through Trommels is to be in the enclosed area to control odour generating from compost. Any waste or its material should not be kept in open area.	Compost material, after segregation (below 20 mm) using trommels was found stored in an enclosed area to control odor.	**Complied (Confirmed details of Generation & utilization of compost is not provided)**
xiv	Automatic Mode	The plant shall be run in automatic mode to achieve stable operating conditions within the design specifications. The manual mode of operations shall be switched to automatic mode.	As informed , the plant was found operational in fully automatic mode.	Complied
xv	Temperature	Incinerator temperature shall be maintained between 950-1100 °C during operations so that Dioxins and furans are destroyed at that temperature.	Incinerator temperature was observed between 980.89 to 1100 °C	Complied
xvi	Green Belt	Greenbelt around the power plant shall be set up to attenuate noise and dust emissions.	Greenbelt was developed in and around the facility	Complied

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 15.01.2020	Compliance Status as informed by the project proponent/Observations during inspection by CPCB	Remarks
xvii	Environmental Protection Measures	i) Replaced all filter bags in Flue Gas Cleaning System with advanced filter bags.	As informed , replaced filter bags in the Flue Gas Cleaning System with advanced versions.	Complied
		ii) Replaced corroded stack with a new stack.	Replaced corroded stack with a new one.	
		iii) Implemented radioactive sensors.	Installed radioactive sensors for monitoring.	
		iv) Enriched water sprinkler system for controlling fugitive dust.	Water sprinkler system for fugitive dust control.	
		v) Enriched metal recovery systems at various locations.	Metal recovery systems at various locations.	
		vi) Installed fly ash brick manufacturing plant to utilize fly ash.	Installed brick manufacturing plant to utilize bottom ash; however, fly ash is disposed at SLF	complied
		vii) Implemented mist spray system to control odour.	Implemented mist spray system for odor control.	Complied
		viii) Upgraded the Continuous Emission Monitoring System.	As informed. upgraded Continuous Emission Monitoring System	Complied
			.	

Table B: EC dated 09.01.2023

The MoEF&CC has granted EC to the WTE Plant at Okhla dated 09.01.2023 for expansion of the plant from 23 MW to 40 MW capacity. The terms and conditions mentioned in the EC is tabulated **below.** However, it is informed by proponent that no additional upgradation in the plant & Machinery in this regard has been done till date of the inspection.

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 09.01.2023	Observation during Inspection
i	Power Generation (MWh)	40	No physical/infrastructural upgradation has been observed as per EC dated 09.01.2023 by proponent as on the date of inspection. The Consent to Establish (CTE) for Expansion / Consent to Operate (CTO) has not been applied with the Delhi Pollution Control Committee
ii	Land Area (cum)	30444	
iii	Total Water Requirement (KLD)	1375	
iv	Source of Water	Okhla STP	

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 09.01.2023	Observation during Inspection
v	Effluent Generated from MSW during Storage for 5-7 Days	Effluent will be treated, recycled & reused. (Plant will be based on ZLD).	for the expanded capacity (40 MW) of the plant as on the date. The following points may please be noted: • OCEMS in existing system contains sensors for PM, SOx, NOx and HCL and connected to CPCB server. • CAAQMS is installed but not connected to CPCB server. • Flue gas cleaning system/desulphurization system has already been installed. • No ESP in existing system. • Fly Ash sent to SLF • Zero liquid discharge system is already in place for Leachate Management including MEE and RO.
vi	Power Requirement	Met by self-generated electricity & for emergency requirement unit has two DG sets of 320 KVA	
vii	No. of RDF Fired Boilers	Existing three boilers of 18.75 TPH Additional two boilers of capacity 21 TPH	
viii	APCD Requirement & Air Quality Measures	24 x 7 online monitoring system for ambient air quality shall be established with its connectivity with SPCB and CPCB server. (Is the existing OCEMS connected with CPCB Server) (i) Flue Gas Desulphurisation System shall be installed based on Lime/Ammonia dosing to capture Sulphur in the flue gases to meet the SO_2 emissions standard of 100 mg/Nm^3. (Is it there in the existing system) (ii) Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOx Burners with Over Fire Air (OFA) system shall be installed to achieve NO_x emission standard of 100 mg/Nm^3. (Is it there in the existing system) (iii) High-efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm^3. (Is it there in the existing system) (iv) Stacks of prescribed height shall be provided with continuous online monitoring instruments for SO_x, NO_x, and Particulate Matter as per extant rules. (v) Exit velocity of flue gases shall not be less than 20-25 m/s. Mercury emissions from stack shall also be monitored periodically. Continuous Ambient Air Quality monitoring system shall be set up to monitor (vi) Common/criteria pollutants from the flue gases such as PM10, PM2.5, SO_2, NO_x within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually. (vii) Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas, and material transfer points to control fugitive emissions. (viii) Appropriate Air Pollution Control measures (DES/DSs) be provided at all the dust generating sources including sufficient	

S. No.	Items	Details of Project Configuration as per EC granted by MoEF & CC dated 09.01.2023	Observation during Inspection
		water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.	
ix	Utilization of Fly Ash/bottom ash	Brick manufacturing unit for utilization of fly ash and unsuitable ash to be sent to allotted landfill site by MCD (Existing Utilization). Fly ash shall be collected in dry form and ash generated shall be used in a phased manner.	Partially complied
x	Green Cover	Extensive green cover within 2 km range of the plant boundary shall be developed and an action plan in this regard to be prepared in consultation with CPCB. (Existing Green Cover)	A copy of letter dated 05.04.2023 as Action plan for extensive green cover around 2 km of WTE plant is submitted to MOEF&CC.
xi	Display Board	LED display of air quality (Continuous Online monitoring) shall be installed on the roadside (within 1 km range) and nearby hotspots viz. residential colony, schools, hospitals; maintenance of devices shall be done on regular basis	Already in place
xii	Leachate Management	A detailed action plan regarding leachate handling shall be prepared and implemented in consultation with SPCB and the same shall be submitted to the Regional Office of the Ministry. Zero liquid discharge shall be adopted. Leachate shall be treated and reused. (Existing Leachate Management System). Toxicity Characteristics Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into groundwater.	Already in place
xiii	Groundwater Quality	Monitoring of surface water quality and groundwater quality shall also be regularly conducted and records maintained.	Complied
xiv	Zero Liquid Discharge	Effluent will be treated and recycled and reused. The plant will be based on Zero Liquid Discharge System	Already in place for existing capacity